

## Needham Public Schools 2006 MCAS Results - An Overview

The Massachusetts Comprehensive Assessment System (MCAS) tests are part of the Commonwealth's Education Reform initiative to improve the achievement of every child. These tests are based on state curriculum frameworks which set high standards for what students are expected to know and be able to do. Last spring, the MCAS tests were administered for the ninth time since they were introduced in 1998. The school system recently received results for the 2006 MCAS tests, and this report provides a general overview.

### What tests were administered?

The table below shows the 2006 tests and question tryouts administered at each grade level. No student or school results are reported for tryout questions.

Grade 3	Reading Mathematics
Grade 4	English Language Arts (ELA) Mathematics
Grade 5	ELA Mathematics Science and Technology/Engineering History and Social Studies Question Tryout
Grade 6	ELA Mathematics
Grade 7	ELA Mathematics History and Social Studies Question Tryout
Grade 8	ELA Mathematics Science and Technology/Engineering
Grade 10	ELA Mathematics
Grade 9/10	Science and Technology/Engineering Question Tryout
Grade 10/11	U.S. History Question Tryout

### How are the results reported?

At grades 4 through 10, MCAS results are reported according to four performance levels:

<b><i>Advanced (A)</i></b>	Students at this level demonstrate a comprehensive understanding of challenging subject matter and provide sophisticated solutions to complex problems.
<b><i>Proficient (P)</i></b>	Students at this level demonstrate a solid understanding of challenging subject matter and solve a wide variety of problems.
<b><i>Needs Improvement (NI)</i></b>	Students at this level demonstrate a partial understanding of subject matter and solve simple problems.
<b><i>Warning/Failing (W)</i></b>	Students at this level demonstrate a minimal understanding of subject matter and do not solve simple problems.

There has been a change in the reporting of 3<sup>rd</sup> grade results this year. They are now reported using four performance definitions instead of three as in the past. The new level is:

***Above Proficient (P+)*** Students at this level demonstrate mastery of challenging subject matter and construct solutions to challenging problems.

The other three levels (***Proficient, Needs Improvement*** and ***Warning***) are the same as above.

Individual student scores are reported as scale scores ranging from 200-280 using the following ranges:

<b><i>Advanced</i></b>	260-280
<b><i>Proficient</i></b>	240-258
<b><i>Needs Improvement</i></b>	220-238
<b><i>Warning/Failing</i></b>	200-218

The Department of Education no longer reports scaled score averages for schools or districts; rather, they now provide schools with comparative data using average ***Proficiency Index Results***. Proficiency points are awarded to a school or district for each student in the MCAS test group using the following scale:

<b>MCAS Performance Level</b>	<b>Scale Score</b>	<b>Proficient Index Points per Student</b>
Proficient or Advanced	240-280	100
Needs Improvement (High)	230-238	75
Needs Improvement (Low)	220-228	50
Warning/Failing (High)	210-218	25
Warning/Failing (Low)	200-208	0

The **No Child Left Behind** law has a goal that all students be ***Proficient*** by 2014. Massachusetts is currently at the halfway point in this goal. The **Composite Proficiency Index (CPI)** average is designed to give schools a means to measure their progress. A score of 100 would indicate that all students had scored Advanced or Proficient. The average CPI scores are used to rate schools using the following scale:

<b>Performance Ratings</b>	
<b>Rating</b>	<b>Proficiency Index Average</b>
Very High	90 – 100
High	80 – 89.9
Moderate	70 – 79.9
Low	60 – 69.9
Very Low	40 – 59.9
Critically Low	0 – 39.9

### **How did Needham students perform?**

#### Grade 10

Students in the Class of 2008 are required to earn a "competency determination" as well as meet local graduation requirements in order to earn a diploma from Needham High School. To earn a competency determination a student must pass both the grade 10 MCAS English Language Arts (ELA) and Mathematics tests by earning a score of ***Needs Improvement*** or above. Over 99% of all 10<sup>th</sup> grade Needham High School students passed the test on the first try.

Students who failed the test will be given a retest in November. All of these students were identified during the summer based on raw score data and have already been offered individualized tutoring to prepare them for the retest. It should be noted that all current Needham High School seniors have achieved “competency determination” by passing both tests, except for a few students who moved to Needham as seniors and have not yet taken the test.

It is possible to compare the recent results with the previous four years.

**Five-Year Comparison of High School Performance Level Results  
(% of students)**

<b>Grade 10</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Failing</b>	<b>CPI</b>
2002 English Language Arts	43	48	8	1	95.0
2003 English Language Arts	43	47	9	1	96.0
2004 English Language Arts	40	49	10	0	96.7
2005 English Language Arts	47	43	8	1	96.3
2006 English Language Arts	39	53	6	1	97.1
2002 Mathematics	44	36	17	3	91.7
2003 Mathematics	48	34	17	2	92.5
2004 Mathematics	57	30	12	1	95.4
2005 Mathematics	67	24	7	1	96.5
2006 Mathematics	76	17	6	1	96.9

The CPI increased on both tests, indicating that Needham is making progress towards having all students score in the Advanced or Proficient range. However, the percentage of students in the Advanced range on ELA decreased from last year’s 47% to 39% while the percentage increased in Mathematics from 67% to 76%. It is important to note that the trend was similar in the state. Across the state 10<sup>th</sup> grade students in the Advanced range decreased in ELA from 22% in 2005 to 16% in 2006, while the state percentage increased in Mathematics from 34% in 2005 to 40% in 2006. Such changes raise questions about the reliability of the test from year to year and make drawing conclusions about local trends problematic.

Grade 8

All 8<sup>th</sup> grade students were tested in three areas. Mathematics and Science & Technology/Engineering have been given for a number of years, and ELA was added for the first time in 2006.

**Five-Year Comparison of Grade 8 Mathematics Performance Level Results  
(% of students)**

<b>Grade 8</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
2002 Mathematics	22	37	30	12	81.6
2003 Mathematics	25	38	28	9	83.4
2004 Mathematics	29	39	24	8	84.7
2005 Mathematics	31	35	22	12	83.0
2006 Mathematics	31	42	17	10	87.3

After a slight dip in the CPI in 2005, the percentage of students in the Advanced and Proficient ranges increased this year, and the CPI jumped by 4.3 points. The gain is all the more impressive given that the state scores remained the same.

**Four-Year Comparison of Grade 8 Science and Technology/Engineering Results  
(% of students)**

<b>Grade 8</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
2003 Science	10	51	30	9	82.5
2004 Science	18	48	25	9	85.2
2005 Science	11	50	27	12	81.6
2006 Science	13	53	26	8	86.6

Similar to Mathematics, there was an improvement in the Science scores. More students scored in the Advanced and Proficient ranges, and the CPI more than regained the dip that was seen in 2005.

Because this was its first administration, the English Language Arts test cannot be compared with previous years. The only comparison group available is the state.

**Comparison of 8<sup>th</sup> Grade Needham and State 2006 ELA Results  
(% of Students)**

<b>Grade 8</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
Needham	22	67	8	3	97.0
Massachusetts	12	62	19	7	88.3

Needham's 8<sup>th</sup> grade had 89% of its students in the Advanced or Proficient range on the first administration of this test. While the scores exceed the state, it will be important to monitor trends in the future.

Grade 7

The ELA test has been given at the 7<sup>th</sup> grade level for a number of years.

**Five-Year Comparison of Grade 7 Performance Levels in ELA  
(% of students)**

<b>Grade 7</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
2002 English Language Arts	16	69	13	1	95.7
2003 English Language Arts	16	72	11	1	96.1
2004 English Language Arts	16	72	11	1	95.5
2005 English Language Arts	25	64	7	3	96.9
2006 English Language Arts	23	67	9	1	96.4

These scores remain very high, with nine out of every ten students in either Advanced or Proficient. The CPI declined slightly, but the change is not considered statistically significant (2.5 points or more). The Massachusetts scores also remained very similar from 2005 to 2006.

For the first time in 2006, 7<sup>th</sup> graders were given a Mathematics MCAS test.

**Comparison of 7<sup>th</sup> Grade Needham and State 2006 Mathematics Results  
(% of students)**

<b>Grade 7</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
Needham	35	37	20	7	87.3
Massachusetts	12	28	33	28	66.6

These scores fall in the Good range and exceed the state by a wide margin; however, it is difficult to interpret the significance of these scores with only a state comparison.

Grade 6

Sixth graders were assessed in ELA and Mathematics. Below is a comparison of the Mathematics scores with the previous four years.

**Five-Year Comparison of Grade 6 Mathematics Performance Levels  
(% of students)**

<b>Grade 6</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
2002 Mathematics	47	30	16	7	89.6
2003 Mathematics	43	35	15	7	89.4
2004 Mathematics	47	29	19	5	89.5
2005 Mathematics	44	33	17	6	89.8
2006 Mathematics	43	32	18	7	89.0

It is interesting that there has been remarkably little change in these scores since the test was first introduced in 2002. Massachusetts scores also remained relatively unchanged since 2005.

Sixth graders were also tested for the first time in ELA.

**Comparison of 6<sup>th</sup> Grade Needham and State 2006 ELA Results  
(% of students)**

<b>Grade 6</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
Needham	30	59	9	2	96.5
Massachusetts	10	54	28	8	84.9

The CPI for the 6<sup>th</sup> graders was similar to the CPI scores in ELA at other grade levels. These scores also exceeded the state by a significant margin.

Grade 5

Fifth graders have been given a science test since 2003, but this year ELA and Mathematics tests were also introduced at this grade level.

**Four- Year Comparison of Grade 5 Science and Technology/Engineering Performance Levels  
(% of students)**

<b>Grade 5</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
2003 Science	31	41	24	5	89.4
2004 Science	29	45	24	2	89.9
2005 Science	24	42	30	4	88.4
2006 Science	26	39	32	2	87.9

The CPI declined by 0.5 points which is not considered significant; however these scores have shown a trend down slightly over the 4 years of the test.

The scores in ELA and Mathematics compared with the state appear below.

**Comparison of 5<sup>th</sup> Grade Needham and State 2006 ELA and Mathematics Results  
(% of students)**

<b>Grade 5</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
Needham Mathematics	30	39	24	7	87.2
Massachusetts Mathematics	17	26	34	23	70.2
Needham ELA	33	53	12	2	95.3
Massachusetts ELA	15	44	31	9	83.7

Similar to other levels, the fifth graders have a higher CPI in ELA than in Mathematics; however the state scores reflect a similar pattern.

Grade 4

Fourth graders are tested in both ELA and Mathematics:

**Five-Year Comparisons of Grade 4 ELA Performance Level Results  
(% of students)**

<b>Grade 4</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
2002 English Language Arts	14	60	22	3	NA
2003 English Language Arts	24	57	18	1	93.5
2004 English Language Arts	24	54	21	1	92.8
2005 English Language Arts	22	48	27	3	89.5
2006 English Language Arts	22	56	21	2	92.3

The CPI for ELA improved in Needham while the state scores remained the same as in 2005. Eight percent more students were in the Advanced or Proficient range than in 2005 (78% vs. 70%), but the percentage still is slightly below the high of 81% in 2003.

**Five-Year Comparisons of Grade 4 Mathematics Performance Level Results  
(% of students)**

<b>Grade 4</b>	<b>Advanced</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
2002 Mathematics	25	41	27	7	NA
2003 Mathematics	19	41	36	4	85.4
2004 Mathematics	32	36	29	3	88.5
2005 Mathematics	25	38	34	3	87.4
2006 Mathematics	29	38	31	3	87.5

The percent of students at the Advanced and Proficient level increased from 63% to 67%. This growth is significant because the percentage at the state remained exactly the same as last year.

Grade 3

In response to the need for early literacy for all children, the Department of Education established a 3rd grade Reading test to determine the extent to which schools have succeeded in teaching students to become proficient readers by the end of third grade.

**Comparison of 3<sup>rd</sup> Grade Reading Performance Levels  
(% of students)**

<b>Grade 3</b>	<b>Proficient +</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
2002 Reading	NA	78	20	2	NA
2003 Reading	NA	73	23	4	90.7
2004 Reading	NA	78	19	3	91.7
2005 Reading	NA	80	19	1	93.9
2006 Reading	32	46	21	1	93.2

The percent of students in the Proficient range declined slightly from 80% to 78%. Only 1%, or 4 students, failed to achieve basic competency in reading.

The 3<sup>rd</sup> grade Mathematics test was given for the first time in 2006.

**Comparison of 3<sup>rd</sup> Grade Mathematics Needham and Massachusetts Results  
(% of students)**

<b>Grade 3</b>	<b>Proficient +</b>	<b>Proficient</b>	<b>Needs Improvement</b>	<b>Warning</b>	<b>CPI</b>
Needham	9	68	20	2	92.5
Massachusetts	4	48	32	16	78.0

In Mathematics, the 3<sup>rd</sup> grade CPI was exceeded only by the 10<sup>th</sup> grade class scores. Over three-fourths of the students placed in the Proficient range.

**Adequate Yearly Progress (AYP)**

The *No Child Left Behind Act (NCLB)* has set a requirement that all students attain proficiency on the MCAS by 2014. Each year the Department of Education issues AYP determinations for each school and district. AYP determinations are made separately for English Language Arts (ELA) and Mathematics. For each subject, there are multiple AYP determinations for students in the aggregate as well as for student subgroups. Student groups for whom AYP determinations are made include special education students, students with limited English proficiency, economically disadvantaged students (eligible for free or reduced school lunch), and African American, Hispanic, Asian, White, and Native American students. Students are counted in *each* group to which they belong. Subgroups that do not make up at least 5% of the overall population are reported, but Performance Targets are not listed because the data are not considered statistically significant.

AYP determinations for districts, schools, and student subgroups are based on answering “Yes” to three of four questions:

**A. Are at least 95% of students taking part in MCAS?**

In Needham 100% of our students participate.

**B. Has the district met the state’s target Composite Performance Index for the current review period?**

This year, the state’s target CPI is 80.5 in English Language Arts and 68.7 in Mathematics. (See the charts below.)

**C. Is the rate of improvement on target to reach 100% proficiency by 2014?**

(See the charts below.)

**D. Does the attendance meet the state’s 92% attendance rate?**

The attendance rate in Needham is 96.7%.

In the summer of 2006, the U.S. Department of Education allowed Massachusetts to revise its approach for identifying districts in need of improvement. Under the revised method, a district will be identified for

corrective action only when the district fails to make AYP in the same subject area for each of the elementary, middle, and high school grade spans.

ENGLISH LANGUAGE ARTS						
Student Group	Performance			Improvement		AYP 2006
	N	CPI	Met Target	CPI Change	Met Target	
Aggregate	2949	94.3	Yes	0.2	Yes	Yes
Lim. English Prof.	41	77.4	-	-	-	-
Special Education	323	78.0	Yes	0.9	No	Yes
Free Lunch	113	79.4	-	-	-	-
Afr. Amer./Black	97	83.5	-	-	-	-
Asian or Pacif. Isl.	186	93.8	Yes	- 1.9	Yes	Yes
Hispanic	65	81.2	-	-	-	-
Native American	0	-	-	-	-	-
White	2597	95.1	Yes	0.4	Yes	Yes

All of the four reported groups made AYP for 2006. Special education students did not meet their target, but the group still met AYP because special education students in grades 6-8 and 9-12 met their targets; only students in grade 3-5 failed to achieve AYP.

There are still significant achievement gaps among the various racial, ethnic, and economic groups. Black (83.5), Hispanic (82.1), Special Education (78.0), Free Lunch (79.4) and Limited English Proficient (77.4) all lag behind White (95.1) and Asian (93.8) students.

MATHEMATICS						
Student Group	Performance			Improvement		AYP 2006
	N	CPI	Met Target	CPI Change	Met Target	
Aggregate	2893	89.7	Yes	1.3	Yes	Yes
Lim. English Prof.	34	77.9	-	-	-	-
Special Education	353	69.5	Yes	1.5	Yes	Yes
Free Lunch	103	69.2	-	-	-	-
Afr. Amer./Black	93	63.4	-	-	-	-
Asian or Pacif. Isl.	160	95.5	Yes	1.1	Yes	Yes
Hispanic	68	69.9	-	-	-	-
Native American	0	-	-	-	-	-
White	2568	90.8	Yes	1.2	Yes	Yes

In Mathematics, again all groups made AYP. However, the gap between various groups is even greater than it was in ELA. White and Asian students exceed all of the other groups by a minimum of 13 points and by as much as 32 points.

### What do these results tell us?

In most instances, the performance of Needham students is very good. They score significantly better than their peers around the state; indeed, the scores are among the best in the state. A very high percentage of our High School students continue to achieve the Competency Determination which is necessary for them to be awarded a diploma. To date, no Needham High School student has failed to graduate due to the MCAS requirement.

The 2006 scores remained very similar to previous years, with some slight gains and declines. The major concerns identified by the tests have to do with the performance of various subgroups. NCLB requires that all students become proficient by 2014; and, to reach this goal, it will be necessary to close these achievement gaps.

Any comparisons with prior years should be done with caution. Different students took the tests, and our experience tells us that different classes can vary greatly in ability and achievement. In addition, these tests change yearly, and there are questions about the reliability of the results from year to year.

**What are we doing with the results?**

We have been studying item analysis results for 10th grade since the summer. For those students who failed a test, we have developed individual remediation plans and have already begun services. It is possible to take a retest this November, and it is our goal to provide help for at-risk students as soon as possible.

Curricular leaders and classroom teachers at all levels will now begin analyzing the results for all students to identify anyone who may need additional help as well as to look for changes which we may need to make in our curriculum or instruction. Individual Remediation Plans are developed for all students who fail, as well as for many students who do not work up to expectations.

During the coming weeks, curricular leaders will examine item analysis reports in an attempt to gain a better understanding of what these results mean. These reports allow us to determine how our students perform with different types of questions (multiple choice, short answer, open response) as well as how they do on questions assessing a particular skill or fact.

**What changes are anticipated in MCAS requirements?**

The Board of Education has voted that for the class of 2010, students must either

- a) Pass with a scaled score of 240 on both ELA and Math MCAS tests; or
- b) Pass with a scaled score of 220 and fulfill the requirements of an Educational Proficiency Plan (EPP). It is not entirely clear what the EPP will entail, but it will describe the courses and requirements the students will be required to complete in grades 11 and 12 as well as the means the school will use to determine that the student is moving towards proficiency.

Another change is that the Board has added Science, Technology, and Engineering to the competency requirement for graduation beginning with the Class of 2010, and to add history for the Class of 2012.

George Johnson  
September 2006