

# NEWS

## Connecticut Department of Education

Dr. Mark K. McQuillan  
Commissioner



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### 2008 Connecticut Mastery Test Results Show Uneven Gains: Upper Grades Do Better

(HARTFORD, CT) Connecticut's elementary and middle grade students generally improved their performance in mathematics and reading, while posting mixed results in writing on the 2008 Connecticut Mastery Test (CMT). The annual, state-administered CMT assesses approximately 250,000 students in Grades 3 through 8 on their application of skills and knowledge in these three core academic disciplines. For the first time this year, public school students in Grades 5 and 8 were also given an assessment in science.

"When we look across the performance of six grades of students in three academic disciplines, it would be fair to characterize this year's scores as uneven improvement," said Commissioner Mark K. McQuillan in announcing this year's statewide scores. "I am still concerned about the downward trend in reading in Grades 3, 4, and 8 and know that we must do more at the State and local levels to accelerate improvement and to close the achievement gaps."

**Table 1** compares the percentage of students scoring at or above the proficient level and the percentage of students scoring at or above the goal level for each content area tested in 2006 through 2008, and for science this year.

**Table 1: CMT Performance, by Year and Grade, Percent At/Above Proficient and Percent At/Above Goal**

Grade	Year	Mathematics		Reading		Writing		Science	
		% Prof	% Goal	% Prof	% Goal	% Prof	% Goal	% Prof	% Goal
3	2006	78.3	56.3	69.2	54.4	81.7	61.1		
	2007	80.1	59.4	69.3	52.3	82.4	60.8		
	2008	80.7	60.2	68.4	52.1	82.9	63.5		
4	2006	80.3	58.8	71.8	57.8	84.2	62.8		
	2007	80.9	62.3	70.6	57.0	84.1	65.1		
	2008	81.5	60.5	69.7	56.0	84.8	62.9		
5	2006	80.8	60.7	72.8	60.9	85.3	65.0		
	2007	82.5	66.0	73.4	61.5	85.7	64.6		
	2008	83.1	66.2	74.0	62.2	85.7	64.6	81.1	55.2
6	2006	79.8	58.6	75.4	63.6	82.7	62.2		
	2007	82.7	63.9	75.7	64.3	83.8	63.0		
	2008	84.3	66.6	77.6	66.4	82.9	61.9		
7	2006	77.8	57.0	76.4	66.7	80.9	60.0		
	2007	80.2	60.3	75.5	65.9	81.1	60.4		
	2008	82.6	63.3	79.7	71.2	80.1	62.0		
8	2006	78.9	58.3	76.6	66.7	81.9	62.4		
	2007	80.8	60.8	76.4	66.6	82.5	64.0		
	2008	81.2	61.0	77.0	64.9	82.7	63.4	75.2	58.9

This is the third administration of the Fourth Generation CMT, which was first administered in March 2006. The March 2006 administration serves as a baseline for examining changes in student performance between 2006 and 2008. The proficient level is the standard used to identify schools and districts that are making Adequate Yearly Progress (AYP) under the federal No Child Left Behind (NCLB) Act. The goal level is the State standard, which is more challenging than the proficient standard.

“Student performance in mathematics was steady and consistently improved throughout the grades while improvements in reading were primarily in the middle grades this year. In writing, our students maintained strong performance, but scores were both up and down slightly. In all, most gains in student performance were in Grades 4 through 7 this year.”

“There are bright spots and there are some areas of disappointment in our 2008 CMT scores,” he said. “We will be poring over these data to determine how we can move our students forward, close achievement gaps and help greater numbers of our students to achieve at higher levels academically.”

The Commissioner urged teachers, administrators and parents to use the test data to improve opportunities for individualized instruction for students. “These test results tell us a great deal about how every student is performing and how well students apply their academic skills and knowledge.”

By September, parents will receive CMT score reports giving the individual performance of their children. “I encourage parents to talk with teachers and administrators, to ask questions about what their child needs to improve and develop plans with their teachers to reinforce their work in the classroom. Parents and teachers working together can do great things for children,” said McQuillan.

### **CMT Results by Content Area**

The following summarizes CMT performance for mathematics, reading, writing and science (Grades 5 and 8), focusing on the percentages of students meeting the goal and proficient standards across grades. Tests for all areas contain a combination of multiple-choice and open-ended items.

#### **Mathematics**

Across the grades, the CMT mathematics tests assess skills, concepts and applications in four broad areas of mathematics: Numerical and Proportional Reasoning, Algebraic Reasoning, Geometry and Measurement, and Working with Data: Probability and Statistics. In 2008, across Grades 3 through 8 at least 60 percent of the students in each grade scored at or above goal on the mathematics portion of the CMT, and at least 80 percent scored at or above the proficient level. The score trends for both levels of performance within grades between 2006 and 2008 are positive across the years, with the 2008 percentages the highest for the three-year period of time.

#### **Reading**

In each grade, the CMT reading tests contain two components: Reading Comprehension and the Degrees of Reading Power (DRP). Reading Comprehension tests how well students understand

the content of literary and informational passages, interpret meaning, make connections to the world, and elaborate on the text. The DRP is a nationally normed test that identifies the level of text that students are able to read. At least 52 percent of students scored at or above the goal level and at least 68 percent scored at or above the proficient level on the reading portion of the CMT across Grades 3 through 8. The trends between 2006 and 2008 are positive across the years for Grades 5 through 7 for goal and proficient, negative for Grades 3 and 4 and mixed for Grade 8.

## **Writing**

The CMT writing tests include the Direct Assessment of Writing and Editing & Revising, at each grade. Editing sections test students' understanding of the conventions of the English language including capitalization, punctuation and usage of language and spelling, while Revising sections assess students' ability to read passages and identify errors in organization, syntax and word choice. The Direct Assessment of Writing requires students to write up to a three-page first draft. Students respond to a prompt that was designed to elicit a narrative (Grades 3 and 4), expository (Grades 5 and 6), or persuasive (Grades 7 and 8) response. In 2008, across Grades 3 through 8, at least 62 percent of the students in each grade scored at or above goal on the writing portion of the CMT and at least 80 percent scored at or above the proficient level. Student performance has been relatively consistent within grades from 2006 to 2008.

## **Science**

This year was the first time that elementary and middle school students in Connecticut were assessed in science. Grade 5 students took a cumulative elementary science CMT that assessed knowledge and abilities learned throughout the elementary grades. Students in Grade 8 were assessed on science knowledge and abilities learned in Grades 6 through 8. Both assessments are based on State expectations for science learning described in the 2004 Core Science Curriculum Framework.

Students are expected to understand and explain science concepts and how they relate to the real world in the areas of earth, physical and life science. In addition, students must be able to explain how scientific inquiry is conducted. Science performance tasks, developed by the Connecticut State Department of Education for teachers' use during the school year, form the basis for some of the CMT questions that assess understanding of scientific inquiry.

In 2008, in both Grades 5 and 8, more than 55 percent of the students scored at or above goal on the science portion of the CMT and at least 75 percent scored at or above the proficient level.

## **Subgroup Performance**

The following summarizes student performance by subgroups such as gender, race/ethnicity, eligibility for free or reduced-price meals (the CSDE poverty indicator), students who receive special education (SPED) services and English language learners (ELL).

### **Gender**

- The percentage of male and female students scoring at or above the proficient and goal levels in mathematics across the grades is similar, indicating there is virtually no gender gap in mathematics performance in the State's elementary and middle schools.

- There is a moderate gender gap in reading when looking at the male and female students scoring at or above the proficient and goal levels across the grades. The widest margin is in Grade 3 where females scored about 8 percentage points higher than males at or above the goal and proficient levels.
- The writing results indicate a large gender gap in performance with female students outperforming males across all grade levels. The largest gap is in Grade 7 with females outperforming males by 18 percentage points at the goal level and 14 percentage points at the proficient level.
- For science in Grade 5, the percentage of males scoring at or above goal was slightly higher than that for females. In Grade 5, the percentage of male and female students scoring at or above the proficient level was similar. In Grade 8, the percentages of males and females scoring at or above the goal and proficient levels were similar.

## **Race/Ethnicity**

Across the grades and content areas, white and Asian American students outperformed their black, Hispanic and American Indian peers in all tested content areas. When looking at gaps in performance, white and Asian American students tended to perform similarly while black and Hispanic students performed similarly.

- About 70 to 85 percent of white and Asian American students scored at or above goal on the mathematics and writing sections of the CMT across grades, compared with about 30 to 40 percent of black and Hispanic students in mathematics, and about 35 percent of the black and Hispanic students in writing. Approximately 90 to 95 percent of white and Asian American students met or exceeded proficiency for mathematics and writing across the grades compared with about 60 to 65 percent of black and Hispanic students.
- About 65 to 85 percent of white and Asian American students met the goal standard across grades for reading compared with about 25 to 45 percent of black and Hispanic students. In addition, about 80 to 90 percent of white and Asian American students met the proficiency standard for reading across grades, compared with about 45 to 60 percent of black and Hispanic students.
- The percentage of white and Asian American students scoring at or above goal in science for Grades 5 and 8 was about 70 percent, while the percentage of black and Hispanic students was about 25 percent. Approximately 88 percent of white and Asian American students met the proficient standard in both Grades 5 and 8, compared with nearly 60 percent of black and Hispanic students in Grade 5 and about 46 percent of black and Hispanic students in Grade 8.
- For mathematics across all grades, for reading in Grades 5 through 7, and for writing in Grade 3, the percentage of students scoring at or above goal and at or above proficient increased for each racial/ethnic subgroup between 2006 and 2008. On average, the percentage point increase was greater for black, Hispanic and American Indian students than their white and Asian American counterparts, suggesting a decrease in the performance gap for these disciplines and grades.

## **Eligibility for Free or Reduced Priced Meals**

A student's eligibility for free or reduced-priced meals (FRM) is a measure of the student's family's economic need or poverty. In all subjects tested and in all grades, a higher percentage of non-eligible students scored at or above goal and at or above proficient than their FRM-eligible peers.

- About 30 and 40 percent of FRM-eligible students met the goal standard for mathematics across the grades, compared with about 70 to 80 percent of non-eligible students statewide. For performance at or above the proficient level, about 60 and 65 percent of FRM-eligible students met the standard compared with 90 to 92 percent of their more advantaged peers.
- Reading results indicate that about 25 to 45 percent of FRM-eligible students scored at or above goal across the grades, while about 65 to 82 percent of the State's more advantaged students met the goal standard. About 45 to 55 percent of FRM-eligible students met the proficiency standard, compared with about 80 to 90 percent of their non-eligible classmates.
- For writing, the percentage of FRM-eligible students scoring at or above goal ranged from 34 to 40 percent, compared with about three-fourths of non-eligible students. Across the grades, about 60 to 70 percent of FRM-eligible students scored at or above proficient, compared with about 90 percent of the non-eligible students.
- In Grades 5 and 8, about 25 percent of the FRM-eligible students met the goal standard for science compared with about 70 percent of their more advantaged peers. Fifty-nine percent of Grade 5 and 39 percent of Grade 8 FRM-eligible students scored at or above proficient, compared with 91 percent and 87 percent, in Grade 5 and 8 respectively, of their more advantaged peers.
- In reading and mathematics across all grades and in writing for Grades 3 and 6, the gap in performance between FRM-eligible students and their non-eligible classmates decreased at both the goal and proficient levels between 2006 and 2008.

## **Special Education**

Across the grades, smaller percentages of SPED students scored at or above goal and at or above proficient on all the tested content areas of the CMT than their non-SPED peers.

- The trends in mathematics performance over the three years for SPED students are generally positive, particularly at the proficient level. On average, about one-fourth of SPED students met the State goal in mathematics compared with about two-thirds of their non-SPED classmates. At the proficient level, the percentages increased to about 40 to 50 percent of SPED students compared with about 85 to 90 percent of their non-SPED peers.
- Across the grades, between about 10 to 30 percent of SPED students met the State goal in reading compared with about 55 to 80 percent of their non-SPED classmates. At the above proficient level, the percentages increased to about 25 to 40 percent of SPED students and 70 to 85 percent of their non-SPED peers.
- Between 15 and 25 percent of SPED students met the State goal in writing across the grades, compared with 68 to 70 percent of their non-SPED peers. At the proficient level, the percentages increased to about 35 to 50 percent of SPED students compared with about 85 to 90 percent of their non-SPED peers.
- For science in Grades 5 and 8, approximately 22 percent of SPED students scored in the goal range, compared with about 60 percent of their non-SPED classmates. The percentage of SPED students scoring in the proficient range was 50 percent in Grade 5 and 39 percent in Grade 8, compared with 85 and 80 percent in Grades 5 and 8, respectively, for their non-SPED peers.

- While the gap in performance between SPED and non-SPED students decreased between 2006 and 2008, there was no consistent pattern across the disciplines tested.

## **English Language Learners**

Significantly smaller percentages of ELL students scored at or above goal and at or above proficient on all tested content areas of the CMT, compared with non-ELL students.

- In mathematics, about 10 percent to 30 percent of ELL students scored at or above goal. Across the grades, about two-thirds of non-ELL students met the State goal. The percentage of ELL students meeting the State's proficiency standard in mathematics was about 35 to 55 percent across the grades compared with about 80 to 85 percent of non-ELL students.
- Across the grades, about 10 percent of ELL students met the State goal in reading compared with about 55 to 75 percent of non-ELL students. The percentage of ELL students meeting the State's proficiency standard in reading was about 15 to 25 percent, while about 70 to 85 percent of non-ELL students were proficient across the grades.
- For writing, about 10 to 30 percent of ELL students met goal compared with about 65 percent of non-ELL students. The percentage of ELL students meeting the State's proficiency standard in writing ranged from about 35 to 55 percent, compared with about 85 percent of non-ELL students across the grades.
- The performance of ELL students scoring at or above goal in science was 10 percent in Grade 5 and 5 percent in Grade 8, compared with 58 percent and 61 percent, respectively, for their non-ELL peers. The percentage of ELL students meeting the proficiency standard was 30 percent in Grade 5 and 19 percent in Grade 8, compared with 83 percent and 77 percent in Grades 5 and 8 respectively, for their non-ELL peers.
- ELL students scored consistently lower than their non-ELL peers and the gap in performance show little evidence of declining between 2006 and 2008.

Additional detailed information on subgroup performance is available at: [www.ctreports.com](http://www.ctreports.com).

Sample items from the CMT for each content area and examples of student responses are available in the CMT Handbooks located at:

[http://www.csde.state.ct.us/public/cedar/assessment/cmt/cmt\\_handbooks.htm](http://www.csde.state.ct.us/public/cedar/assessment/cmt/cmt_handbooks.htm).

## **Vertical Scale and Achievement Growth Results 2006-2008**

Vertical scales were developed for CMT mathematics and reading for Grades 3 through 8 to measure changes in student performance. Tables 2 and 3 summarize the statewide mathematics and reading average vertical scale and growth results, respectively, for matched groups of students in Grades 3 through 8 who took the CMT over a two-year period (2006-2008) or a one-year period (2007-2008).

Table 2 presents the average mathematics vertical scale score and achievement growth for each adjacent-grade combination from 2007 to 2008, as well as each three-grade combination from 2006 to 2008. In terms of average vertical scale scores, the mathematics performance of Connecticut students statewide has increased from 2007 to 2008 and from 2006 to 2008, when comparing results for cohorts of students as they progressed through the grades. From 2007 to 2008, mathematics growth is greatest between Grades 3 and 4 (39 vertical scale-score units) and

gradually decreases through the grades to a low of 16 vertical scale-score units between Grades 7 and 8. Over the two-year period from 2006 to 2008, growth is greatest for the grade three/four/five combination (72 vertical scale-score units) and then trends downward to a low of 38 vertical scale-score units for the grade six/seven/eight combination.

**Table 2: CMT Mathematics Vertical Scale and Achievement Growth Results 2006-2008**

Grades	Average Vertical Scale Score			Growth 2006 - 2008	Growth 2007 - 2008
	2006	2007	2008		
G3 - G4		452	491		39
G3 - G4 - G5	450	491	522	72	31
G4 - G5 - G6	487	521	543	56	23
G5 - G6 - G7	515	540	559	45	20
G6 - G7 - G8	532	554	570	38	16

Table 3 presents the average vertical scale and growth data for reading. Similar to mathematics, there is positive growth between each of the adjacent-grade groups from 2007 to 2008 and for each three-grade combination from 2006 to 2008. Growth in reading is also greatest for students in the lower grades and decreases as students move through the higher grades.

**Table 3: CMT Reading Vertical Scale and Achievement Growth Results 2006-2008**

Grades	Average Vertical Scale Score			Growth 2006 - 2008	Growth 2007 - 2008
	2006	2007	2008		
G3 - G4		423	451		28
G3 - G4 - G5	423	451	476	53	26
G4 - G5 - G6	452	477	496	44	20
G5 - G6 - G7	476	491	513	38	22
G6 - G7 - G8	490	506	516	26	10

## **Guidelines for Proper Connecticut Mastery Test (CMT) Data Analysis**

The CMT provides performance data at six grades in three subjects each year. There are various ways to appropriately compare results across years. However, there are also some commonly made comparisons which are inappropriate and can lead to erroneous conclusions. Therefore, the Connecticut State Department of Education (CSDE) is providing this brief guide to list both some appropriate comparison techniques and some common mistakes made when analyzing CMT data.

### Appropriate Analyses:

- Within a generation and grade, mathematics, reading and writing results may be compared across years (e.g., fourth-grade mathematics performance levels in 2007 can be compared with fourth-grade mathematics performance levels in 2008). *Note: As a reminder, the Generation three CMT was administered from 2000-2004 and the Generation four CMT has been administered in 2006, 2007 and 2008.*
- Within a generation and grade, mathematics, reading and writing results may be compared across years at the subgroup level (i.e., English language learner status, special education status, gender status, free/reduced meal status or ethnic background status). For example, the performance of sixth grade girls in writing can be compared with the performance of sixth grade boys in writing.
- Within a generation and grade, comparisons may be made on the basis of scale scores and achievement levels for all groups of students. In reading, DRP unit scores may also be compared for all groups of students.

### Inappropriate Analyses:

- Direct comparisons across generations are inappropriate (e.g., it is not appropriate to compare the performance of fourth-grade mathematics students in the fall of 2004 to the performance of fourth-grade mathematics students in the spring of 2008).
- Comparisons of score-band performance across grades within a content area should not be made. Instead, the CMT vertical scale is a more effective tool when making cross-grade comparisons.
- Averaging numbers across content areas within a grade is not appropriate (e.g., the percentage of students at the goal level in reading across grades cannot be averaged; neither can the percentage of students at the goal level be averaged across all the content areas within a grade).

This list is not exhaustive. If you would like further guidance on how to interpret CMT scores, please call the CSDE Student Assessment Office at (860) 713-6860. (*Note: Members of the press corps should call the CSDE Public Information Office at 860-713-6525.*)