

## MEMORANDUM

TO : Commissioner Steiner  
 FROM : David Liebowitz & Dan Koretz  
 CC : John King, David Abrams, Alan Ray, Ira Schwartz, Allison Armour-Garb,  
 Howard Everson  
 SUBJECT : 8<sup>th</sup> grade Math & ELA cut scores

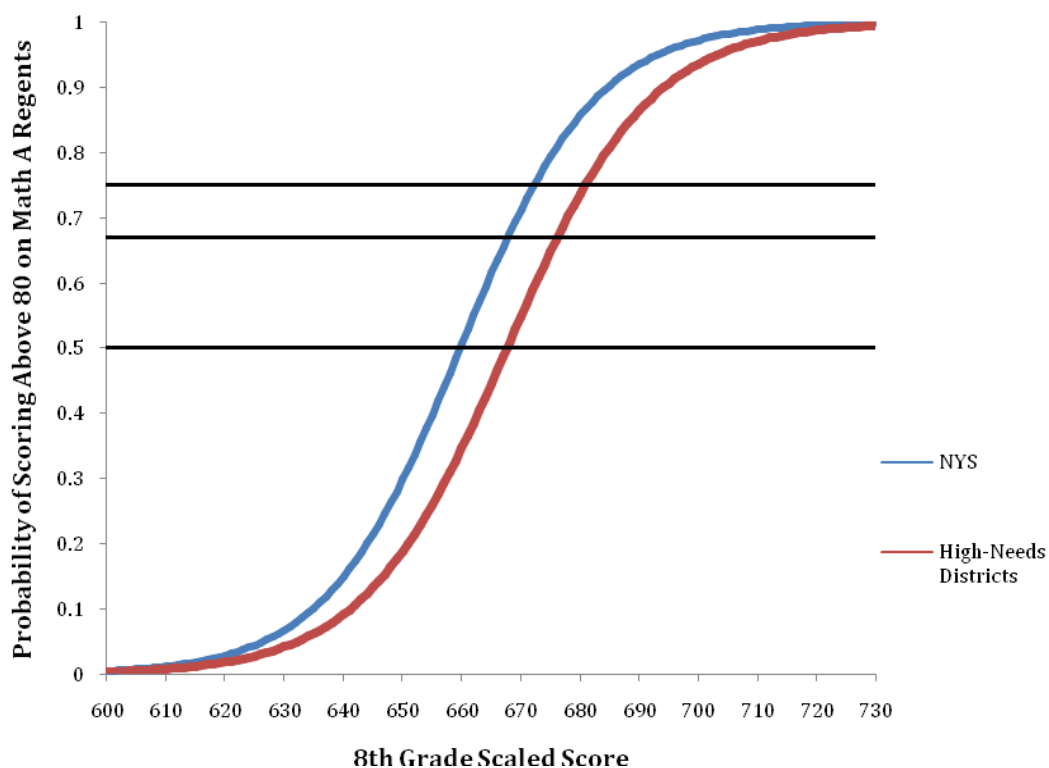
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This memo identifies several potential 8<sup>th</sup> grade Mathematics and ELA Level 3 proficiency cut scores that predict the probability of earning above an 80 or 75 on the Math A and English Regents examinations.

### Mathematics

Figure 1 shows the probability of scoring 80 or above on the Math A Regents given a range of 8<sup>th</sup> grade math scores. As expected, it took a higher scale score for students in high-needs districts to have the same probability of earning an 80 on the Regents exam than for all NYS students. Though not pictured here, the gap is even greater between students in non-high needs and high-needs districts. Figure 2 presents the same information except that the targeted Math A Regents score is a 75 or above. We present the specific scaled scores corresponding to various probabilities in Table 1.

**Figure 1.** Fitted probabilities of scoring 80 or above on Math A Regents for all NYS students and those in high-needs districts in 2006 cohort of 8<sup>th</sup> graders (n = 162,072)



**Figure 2.** Fitted probabilities of scoring 75 or above on Math A Regents for all NYS students and those in high-needs districts in 2006 cohort of 8<sup>th</sup> graders (n = 162,072)

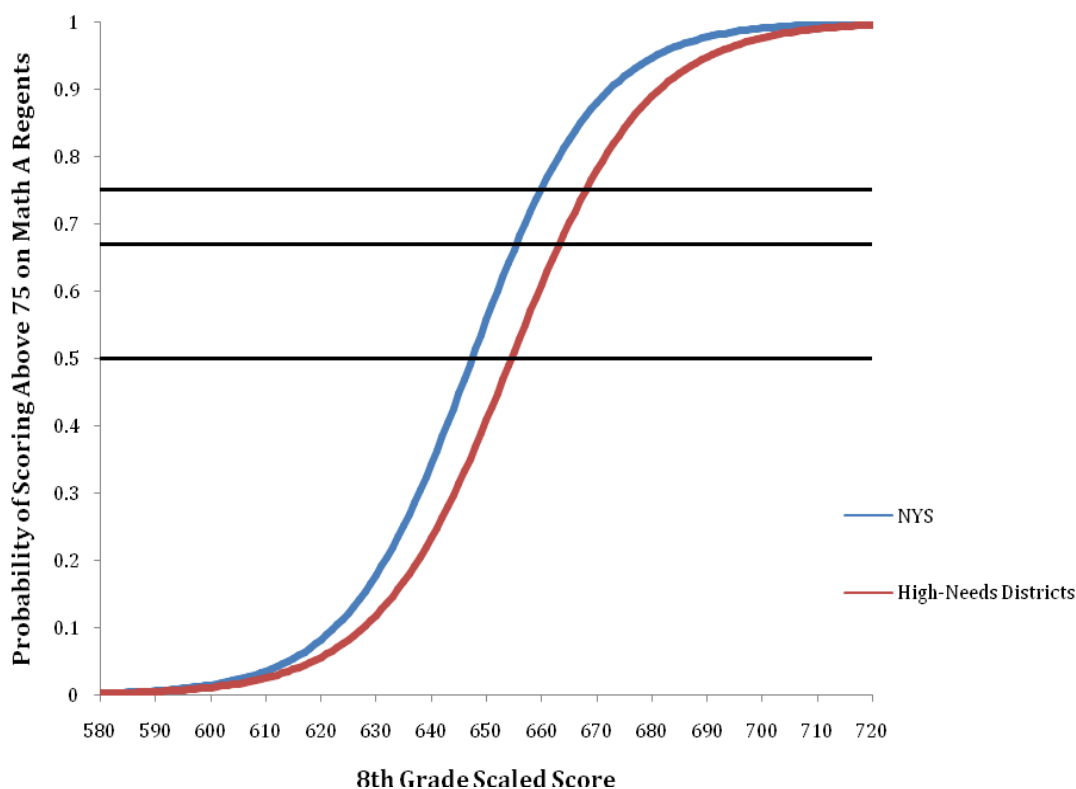


Table 1 identifies the required cut score necessary to have various probabilities of earning either an 80 or 75 on the Math A Regents. It also indicates the proportion of the 2006 cohort who would have missed the Level 3 proficiency threshold were the cut score to have been set at that level. As explained in the footnote, these percentages do not serve as an impact analysis, but rather to indicate the proportion of NYS 2006 8<sup>th</sup> graders who were not prepared for college success.<sup>1</sup>

<sup>1</sup> For comparison sake, with a Level 3 cut score set at its current level of 650, 46.1 percent of 8<sup>th</sup> graders would have failed the state math assessment in 2006. Note, however, that scaled scores have increased since 2006. A complete impact analysis will require CTB to analyze these potential cut scores using current-year data. Also, there is substantial attrition between students who took the 8<sup>th</sup> grade math test in 2006 and those who later took the Math A Regents. Explanation include: dropouts, students leaving the state, students who took Integrated Algebra, etc. According to Dan, this means there will be noise in the estimates, but most likely not enough to affect the broad picture.

**Table 1.** 8<sup>th</sup> grade mathematics cut scores required to have range of probabilities of earning at least a 75 or 80 on Math A Regents for all students in NYS and those in high-needs districts with the associated percent below Level 3 for the 2006 cohort (n = 218,979)<sup>2</sup>

		Regents $\geq$ 80		Regents $\geq$ 75	
		Entire state	High needs	Entire state	High needs
50% probability	Cut Score	660	668	648	655
	% < Level 3 (2006)	57.8%	66.1%	44.4%	52.8%
60% probability	Cut Score	665	673	652	660
	% < Level 3 (2006)	64.4%	71.2%	49.4%	57.8%
67% probability	Cut Score	668	676	656	664
	% < Level 3 (2006)	66.1%	74.6%	54.5%	62.7%
75% probability	Cut Score	672	681	660	668
	% < Level 3 (2006)	71.2%	78.1%	57.8%	66.1%
80% probability	Cut Score	676	685	663	672
	% < Level 3 (2006)	74.6%	81.8%	61.1%	71.2%
90% probability	Cut Score	685	694	672	681
	% < Level 3 (2006)	81.8%	87.7%	71.2%	78.1%

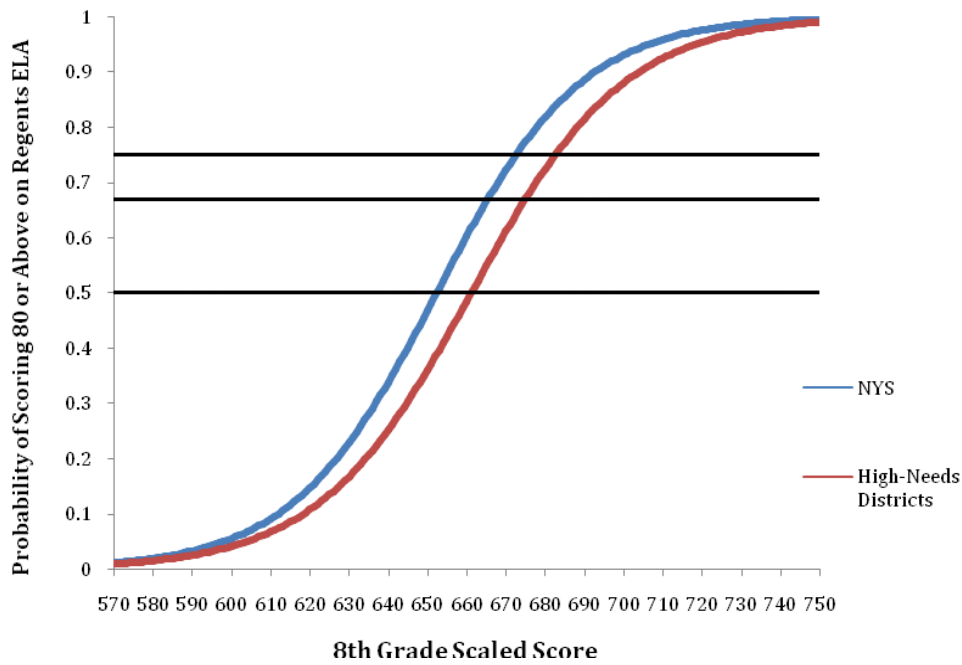
Note: different scale scores may have same % < Level 3 because not all values in scale score range are used.

### English Language Arts

Figure 3 shows the probability of scoring 80 or above on the ELA Regents given a range of 8<sup>th</sup> grade math scores. As with Mathematics, it took a higher scale score for students in high-needs districts to have the same probability of earning an 80 on the Regents exam than for all NYS students. Figure 4 presents the same information except that the targeted ELA Regents score is a 75. We present the specific scaled scores corresponding to various probabilities in Table 3.

<sup>2</sup> These numbers and those in Table 2 do not include a time adjustment of 1 to 3 points. Because the 2010 tests were administered later than previous years, NYSED's test vendor, CTB-McGraw Hill, adjusted all scores by a small amount to reflect the fact that students should have learned more by the time of the test since it occurred at a later date.

**Figure 3.** Fitted probabilities of scoring 80 or above on ELA Regents for all NYS students and those in high-needs districts in 2006 cohort of 8<sup>th</sup> graders (n = 160,531)



**Figure 4.** Fitted probabilities of scoring 75 or above on ELA Regents for all NYS students and those in high-needs districts in 2006 cohort of 8<sup>th</sup> graders (n = 160,531)

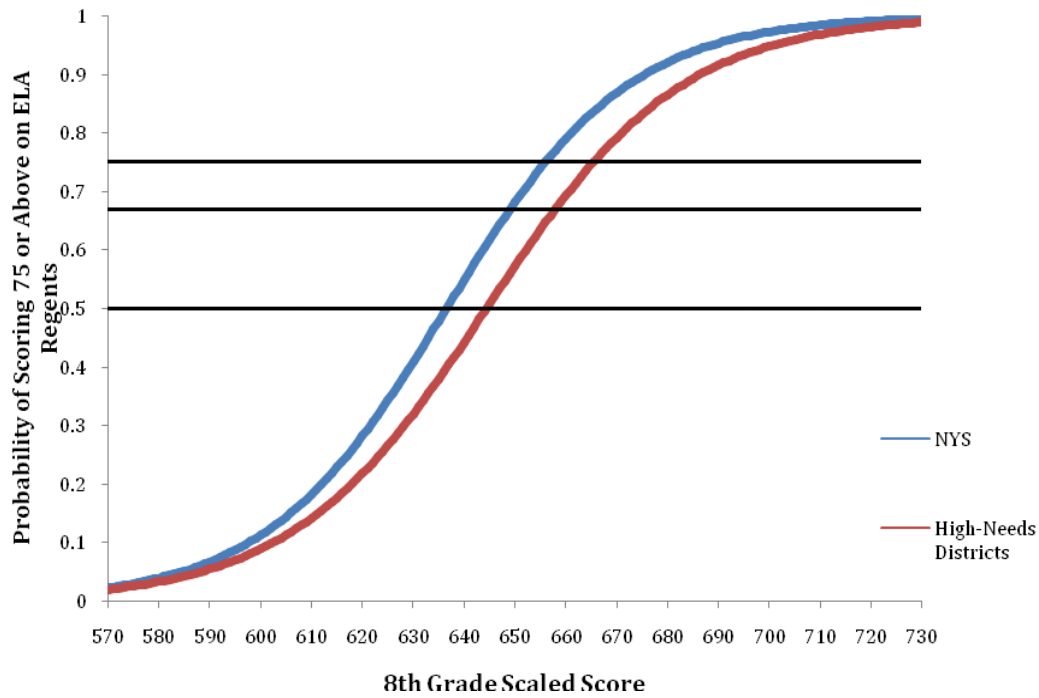


Table 2 identifies the required cut score necessary to have the same probabilities as in Table 1 of earning at least 75 or 80 on the ELA Regents and the proportion of the 2006 cohort who would have missed the Level 3 proficiency threshold at that level.

**Table 2.** 8<sup>th</sup> grade ELA cut scores required to have range of probabilities of earning at least a 75 or 80 on ELA Regents for all students in NYS and those in high-needs districts with the associated percent below Level 3 for the 2006 cohort (n = 212,134)

		Regents $\geq$ 80		Regents $\geq$ 75	
		Entire state	High needs	Entire state	High needs
50% probability	Cut Score	652	661	637	645
	% < Level 3 (2006)	50.7%	61.3%	36.2%	45.6%
60% probability	Cut Score	660	669	644	652
	% < Level 3 (2006)	61.3%	72.0%	45.6%	50.7%
67% probability	Cut Score	665	675	649	658
	% < Level 3 (2006)	66.6%	77.2%	50.7%	61.3%
75% probability	Cut Score	673	683	656	665
	% < Level 3 (2006)	72.0%	82.3%	55.9%	66.6%
80% probability	Cut Score	678	688	661	671
	% < Level 3 (2006)	77.2%	82.3%	61.3%	72.0%
90% probability	Cut Score	692	703	675	686
	% < Level 3 (2006)	87.9%	91.4%	77.2%	82.3%

Note: different scale scores may have same % < Level 3 because not all values in scale score range are used.