

# Vermont



## Introduction

This study linked data from the fall 2005 administration of Vermont’s reading and math tests to the Northwest Evaluation Association’s Measures of Academic Progress (MAP) assessment, a computerized adaptive test used in schools nationwide. We found that Vermont’s definitions of proficiency in reading and mathematics are relatively consistent with the standards set by the other 25 states in this study, with its reading tests a bit above average in difficulty and its math tests a bit below average.

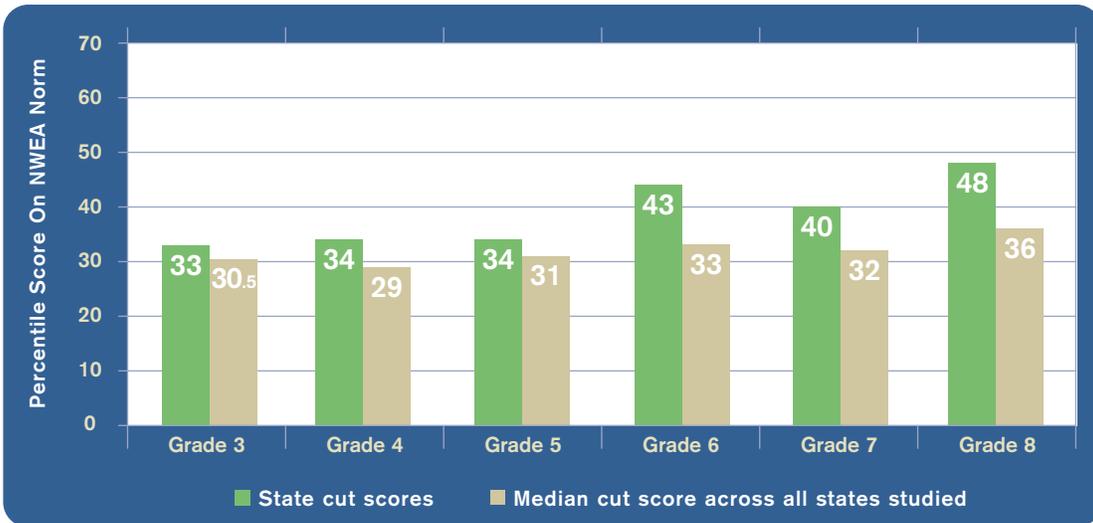
We also found Vermont’s cut scores to be less challenging for third-grade students than for eighth graders. Vermont policymakers might consider adjusting their cut scores to ensure equivalent difficulty at all grades so that parents and schools can be assured that elementary school students scoring at the proficient level are truly prepared for success later in their educational careers.

To determine the difficulty of Vermont’s proficiency cut scores, we linked reading and math data from Vermont’s tests to the NWEA assessment. (A “proficiency cut score” is the score a student must achieve in order to be considered proficient.) This was done by analyzing a group of elementary and middle schools in which almost all students took both the state’s assessment and the NWEA test. (The methodology section of this report explains how performance on these two tests was compared.)

### **What We Studied: New England Common Assessment Program (NECAP)**

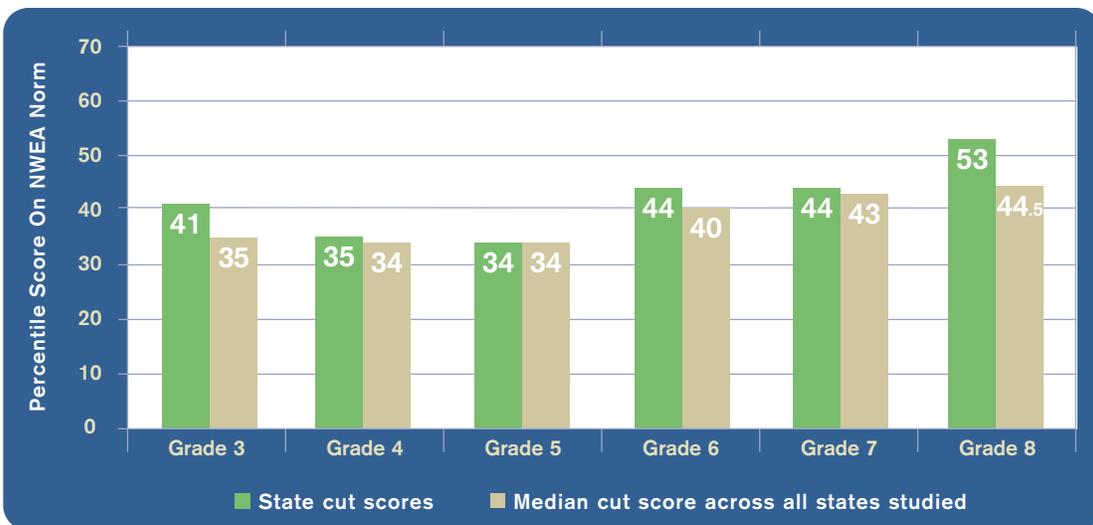
Vermont currently uses a fall assessment called the New England Common Assessment Program (NECAP), developed in conjunction with New Hampshire and Rhode Island. NECAP tests students in grades 3 through 8 in English/language arts and mathematics, with science tests and standards currently under development. The current study uses linked reading and math data from the fall 2005 NECAP administration (in New Hampshire schools, which use the same assessment tool and proficiency cut score standards) to a common scale also administered during the 2005-6 school year.

Figure 1 – Vermont Reading Cut Scores in Relation to All 26 States Studied, 2005  
(as Expressed in MAP Percentiles)



**Note:** This figure compares reading test cut scores (“proficiency passing scores”) as percentiles of the NWEA norm. These percentiles are compared with the median cut score of all 26 states reviewed in this study. Vermont’s cut scores are consistently 2.5 to 12 percentile points above the median.

Figure 2 – Vermont Mathematics Cut Scores in Relation to All 26 States Studied, 2005  
(as Expressed in MAP Percentiles)



**Note:** Vermont’s math test cut scores are shown as percentiles of the NWEA norm and compared with the median cut score of all 26 states reviewed in this study. The cut scores are consistently 1 to 8.5 percentile points above the median, with the exception of grade 5 where the state’s cut score is at the median.

### Part 1: How Difficult are Vermont's Definitions of Proficiency in Reading and Math?

One way to evaluate the difficulty of a standard is to determine how many people attempting to attain it are likely to succeed. How do we know that a two-foot high bar is easy to jump over? We know because, if we asked 100 people at random to attempt such a jump, perhaps 80 would make it. How do we know that a six-foot high bar is challenging? Because only one (or perhaps none) of those same 100 individuals would successfully meet that challenge. The same principle can be applied to academic standards. Common sense tells us that it is more difficult for students to solve algebraic equations with two unknown variables than it is for them to solve an equation with only one unknown variable. But we can figure out exactly how much more difficult by seeing how many eighth graders nationwide answer both types of questions correctly.

Applying that approach to this assignment, we evaluated the difficulty of Vermont's proficiency cut scores by estimating the proportion of students in NWEA's norm group who would perform above the Vermont cut score on a test of equivalent difficulty. The following two figures show the difficulty of Vermont's proficiency cut scores for reading (Figure 1) and mathematics (Figure 2) in 2005 in relation to the median cut score for all the states in the study. The proficiency cut scores

for **reading** in Vermont ranged between the 33rd and 48th percentiles for the norm group, with the eighth grade being most challenging. In **mathematics**, the proficiency cut scores ranged between the 34th and 53rd percentiles, with eighth grade again being the most challenging.

Vermont's cut scores in both reading and mathematics are consistently at or above the median in difficulty among the states studied. Note, though, that Vermont's cut scores for reading are generally lower than for math at the same grades. (This was the case in the majority of states studied.) Thus, reported differences in achievement between the two subjects may be more a product of differences in cut scores than in actual student achievement. In other words, Vermont students may be performing worse in reading and better in mathematics than is apparent by just looking at the percentages passing state tests in those subjects.

Another way of assessing difficulty is to evaluate how Vermont's proficiency cut scores rank relative to other states. Table 1 shows that the Vermont cut scores generally rank in the upper third for reading and at about the middle for math among the 26 states studied for this report. Its reading cut score in grade 8 is particularly high, ranking third out of the 26 states.

Table 1 – Vermont Rank for Proficiency Cut Scores Among 26 States in Reading and Mathematics, 2005

Ranking (Out of 26 States)						
	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Reading	9	6	7	4	7	3
Mathematics	8	10	13	9	9	6

**Note:** This table ranks Vermont's cut scores relative to the cut scores of the other 25 states in the study, with 1 being highest and 26 lowest.

## Part 2: Calibration across Grades\*

Calibrated proficiency cut scores are those that are relatively equal in difficulty across all grades. Thus, an eighth-grade cut score would be no more or less difficult for eighth graders to achieve than a third-grade cut score is for third graders. When cut scores are so calibrated, parents and educators have some assurance that achieving the third-grade proficiency cut score puts a student on track to achieve the standards at eighth grade. It also provides assurance to the public that reported differences in performance across grades are a product of differences in actual educational attainment and not simply differences in the difficulty of the test.

Examining Vermont's cut scores, we find that they are not well calibrated across grades. Figures 1 and 2 showed the relative difficulty of Vermont's reading and mathematics cut scores across the different grades, indicating that the upper-grade cut scores in both subjects were somewhat more challenging than in the lower grades. (This was the case for the majority of states studied.) In other states within the current study, it was possible to show how these differences in cross-grade difficulty affect the proficiency rates (the percentages of students reported as "proficient" or better within each grade), and what the proficiency rates would look like if the cut scores were all calibrated to the eighth-grade difficulty level. Unlike other states, however, Vermont's State Department of

Education website does not publish its proficiency rate data by grade, so such analyses were not possible. In other states with patterns of difficulty similar to Vermont's Figures 1 and 2, however, we saw that differences in proficiency rates, and in particular, dips in performance at the middle-school grades, typically were minimized when the difficulty of the cut scores were standardized. Such patterns suggested that dips in performance in middle-school grades were at least in part the product of non-calibrated cut scores rather than real differences in student performance across grades.

\*Vermont was one of seven states in this study for which cut score estimates could be determined for only one year. Therefore, it was not possible to examine whether its cut scores have changed over time.

---

## Policy Implications

When determining what constitutes proficiency in reading and math, Vermont was about in middle of the pack, at least compared to the other 25 states in this study. Vermont's cut scores are not smoothly calibrated across grades, however, which makes it difficult for the public to accurately evaluate observed differences in student performance across grades.

State policymakers might consider adjusting their cut scores across grades so that parents and schools can be assured that elementary school students scoring at the proficient level are truly prepared for success later in their educational careers.