

# Vermont NAEP 2007 Results Achievement Gap Report



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## NAEP Overview

The National Assessment of Educational Progress (NAEP), also known as "the Nation's Report Card," is the only nationally representative and continuing assessment of what America's students know and can do in various subject areas. It has been conducted periodically since 1969. NAEP is a survey assessment that does not provide scores for individual students or schools because results are based on a sample of students. There are no accountability measures tied to NAEP performance as there are for Vermont's state assessments, the New England Common Assessment Program NECAP.

The No Child Left Behind Act requires states receiving Title I funds to participate in NAEP biennially in reading and math assessments in grades 4 and 8, beginning in 2003. NAEP periodically assesses a national sample of students in additional content areas, like U.S. History, Civics and the Arts. [A schedule of NAEP assessments through 2017 is available on page 16 of this document.]

In 2007, as in most years, a large number of Vermont schools were selected to participate in NAEP. The NAEP sampling frame is designed to ensure that enough students across the state participate in the assessment to yield valid state results (without testing every child in grades 4 and 8 across the state). Approximately 85 percent of schools in Vermont serving grade 4 and 100 percent of schools serving grade 8 were selected to participate in 2007. Assessments were administered across the state from January 22-March 2, 2007.

The next few pages detail Vermont students' performance on the 2007 assessments as well as comparisons with past administrations and the achievement of various subgroups.

## Additional NAEP Resources

- Nation's Report Card (assessment results, frameworks, release items, etc.)  
<http://nces.ed.gov/nationsreportcard/>
- National Center for Education Statistics—NCES (arm of the U.S. Department of Education responsible by law for carrying out the NAEP project)  
<http://nces.ed.gov/>
- National Assessment Governing Board—NAGB (sets policy for NAEP and is responsible for developing the framework and test specifications that serve as the blueprint for the assessments)  
<http://www.nagb.org/>

**Susan Hayes, NAEP Coordinator**  
Vermont Department of Education  
120 State Street, Montpelier, VT 05620  
(802) 828-5892  
[susan.hayes@state.vt.us](mailto:susan.hayes@state.vt.us)

## Highlights of Vermont 2007 NAEP Results

- Vermont students performed better than the national average on all measures of achievement in grades four and eight in reading and math.
- Vermont students posted gains in three of four subject area/grade level combinations. The only grade level and subject area in which no growth occurred from 2005 to 2007 was fourth-grade reading. Fourth-grade math, eighth-grade reading and eighth-grade math showed growth in average scale scores, as well as the percentage of students at the basic level and above and the proficient level and above (indicating growth across the achievement distribution).
- Vermont had the highest average scale score in eighth-grade reading in the country, along with Montana, New Jersey and Massachusetts. Vermont was one of only six states to show gains in eighth-grade reading.
- Both students eligible for the free/reduced priced lunch program and those not eligible for the program saw growth from 2005 to 2007 in fourth-grade math, eighth-grade math, and eighth-grade reading (neither group saw growth in fourth-grade reading).
- Poverty-based achievement gaps are still a concern. The gap between students eligible for the free/reduced priced lunch program and their ineligible peers is considerable (averaging 19 points). Students eligible for the program showed improvements in most subject areas and grade levels from 2005 to 2007 but non-eligible students did as well. Thus, the gap did not narrow significantly from 2005 to 2007.

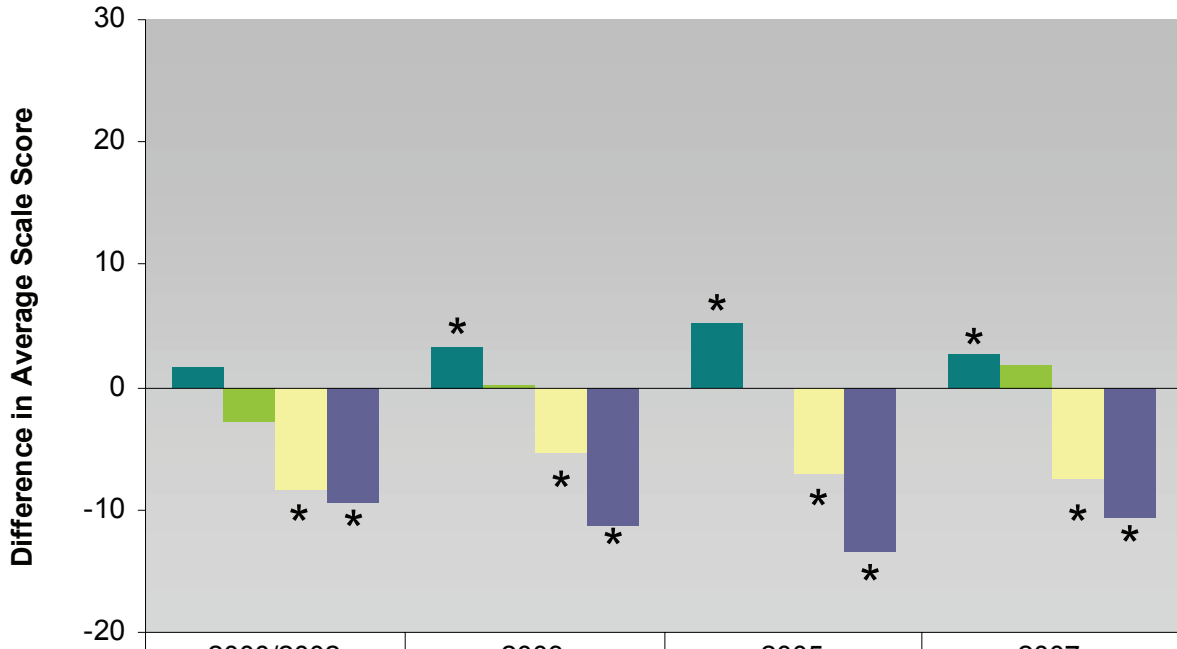
### Mathematics

- Forty-nine percent of Vermont grade four students achieved the rating of “at or above Proficient” compared to 39 percent of fourth-graders nationally.
- Forty-one percent of Vermont grade eight students achieved the rating of “at or above Proficient” compared to 31 percent of eighth-graders nationally.

### Reading

- Forty-one percent of Vermont grade four students achieved the rating of “at or above Proficient” compared to 32 percent of fourth-graders nationally.
- Forty-two percent of Vermont grade eight students achieved the rating of “at or above Proficient” compared to 29 percent of eighth-graders nationally.

### Gender Gaps: Difference in Average Scale Score between Male and Female Students



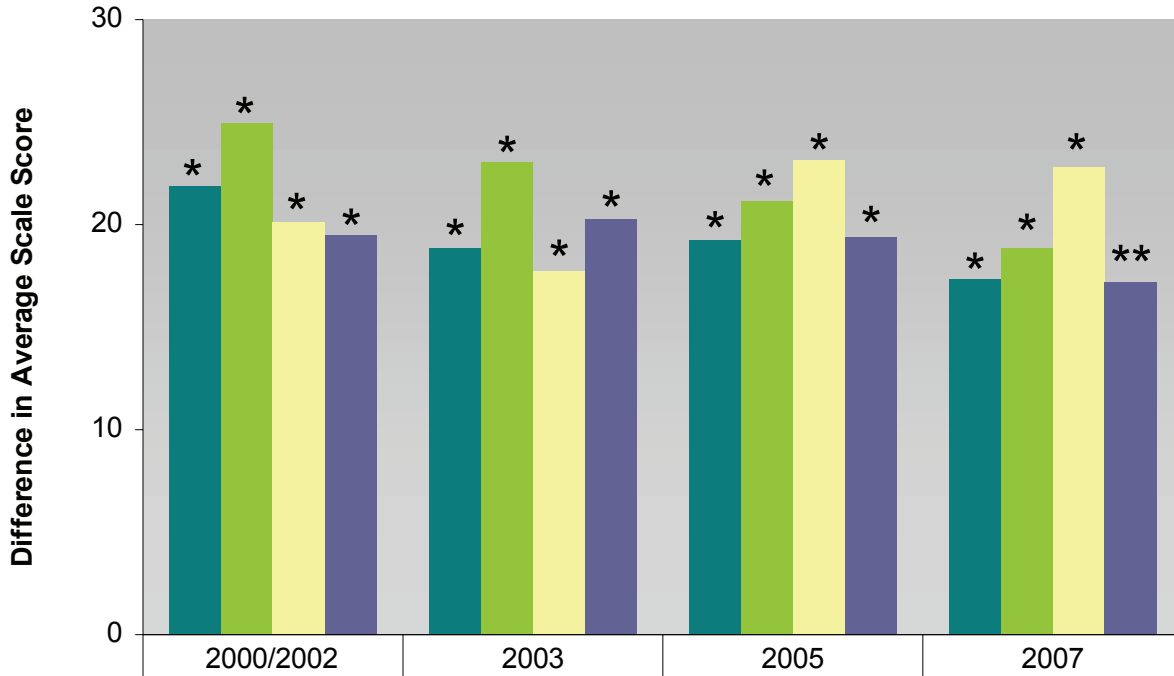
	2000/2002	2003	2005	2007
Grade 4 Math	1.7	3.4	5.2	2.7
Grade 8 Math	-2.8	0.2	0	1.9
Grade 4 Reading	-8.4	-5.3	-7.1	-7.6
Grade 8 Reading	-9.4	-11.4	-13.4	-10.6

\* Indicates that gap is statistically significant.

**NOTE: Bars that drop below zero indicate that female students outperformed male students. Gaps are calculated by subtracting female students' average scale score from male students' average scale score.**

*Interpretation: Female students show a distinct advantage over male students when it comes to reading and this gap seems to grow as students progress through the grades; female students' advantage over their male counterparts is larger in middle school (grade 8) than in elementary school (grade 4). Male students appear to have a slight edge over their female peers in math in grade 4 but their advantage fades by grade 8 where the scores between genders are not statistically significantly different. While the size of the gap looks slightly different over the years, changes are not statistically significant. The gender gap has remained constant over time.*

### Poverty Gaps: Difference in Average Scale Score between Students Eligible and Ineligible for Free/Reduced Price Lunch



Grade 4 Math	21.9	18.8	19.3	17.4
Grade 8 Math	25	23	21.1	18.8
Grade 4 Reading	20.1	17.7	23.2	22.8
Grade 8 Reading	19.5	20.3	19.4	17.2

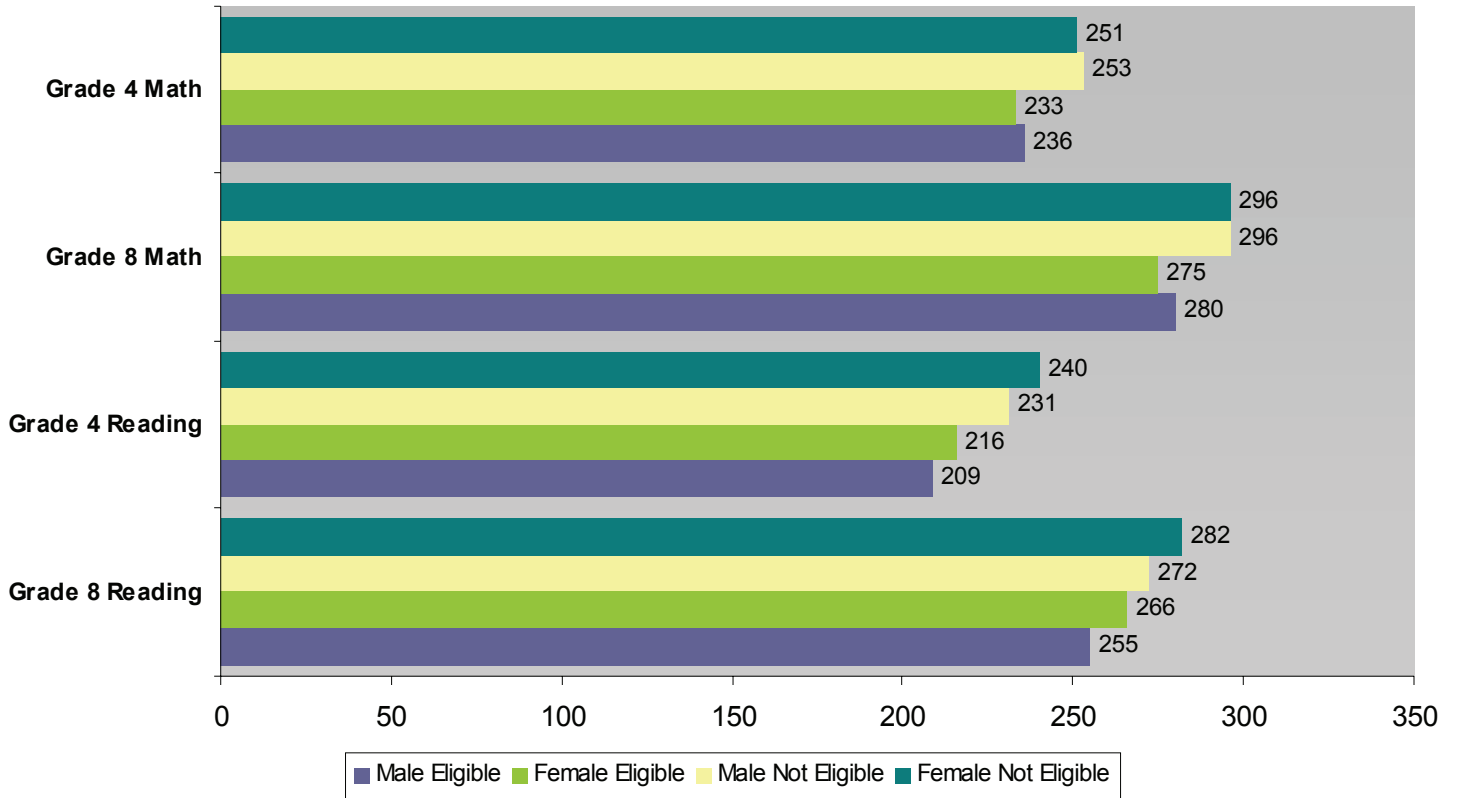
\* Indicates that gap is statistically significant.

\*\* Indicates that gap is statistically significant and that gap has narrowed over previous years.

**NOTE: Gaps are calculated by subtracting eligible students' average scale score from ineligible students' average scale score.**

*Interpretation: Whereas the largest gender-based achievement gap measured approximately 13 points (female students' advantage over male students in grade 8 reading, 2005), the average magnitude of the poverty-based achievement gap is just over 20 points and tops out at 25 points. Students who are not eligible for the free/reduced price lunch program, FRLP, (a proxy measure of poverty) consistently and significantly outperform their peers who are eligible for the program. Gaps at all grade levels and subject areas tested are significant. The gap appears slightly larger in math than in reading. The good news is that 2007 marks the first year that it seems any of these sizeable gaps might be closing. The gap between students eligible for FRLP and those ineligible narrowed in grade 8 reading in 2007, compared to previous years.*

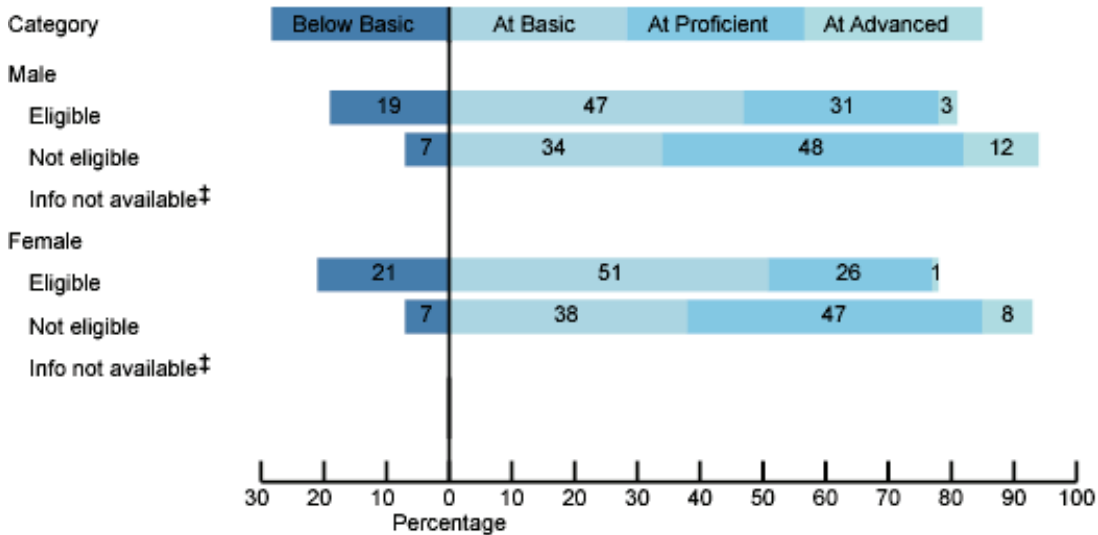
### NAEP Average Scale Scores 2007: Gender and Poverty



*Interpretation: Analyzing the interrelated impact of poverty and gender returns a more nuanced picture of the interplay between student demographics and achievement than analyzing them separately. The chart above indicates that poverty alone does not account for achievement discrepancies between students but that gender plays a role, as well. In particular, female students not eligible for FRLP have a distinct advantage over male students eligible for the program. Gaps between these two groups are largest in reading; the gap in grade 4 reading is more than double the gap in grade 4 math. It is also important to note the size of these gaps. Whereas the magnitude of the poverty gap in the previous analysis topped out at 25 points, the gap in grade 8 reading measures 27 points and in grade 4 reading measures 31 points. Female students' advantage in reading coupled with the impact of poverty amounts to a formidable achievement gap between male students eligible for FRLP and their female classmates not eligible for the program.*

## Grade 4 Math, Differences in Achievement Levels

Percentages of students at each achievement level for mathematics, grade 4  
 Gender [GENDER] x Natl School Lunch Prog eligibility (3 categories) [SLUNCH3]  
 Vermont, 2007



‡ Reporting standards not met.

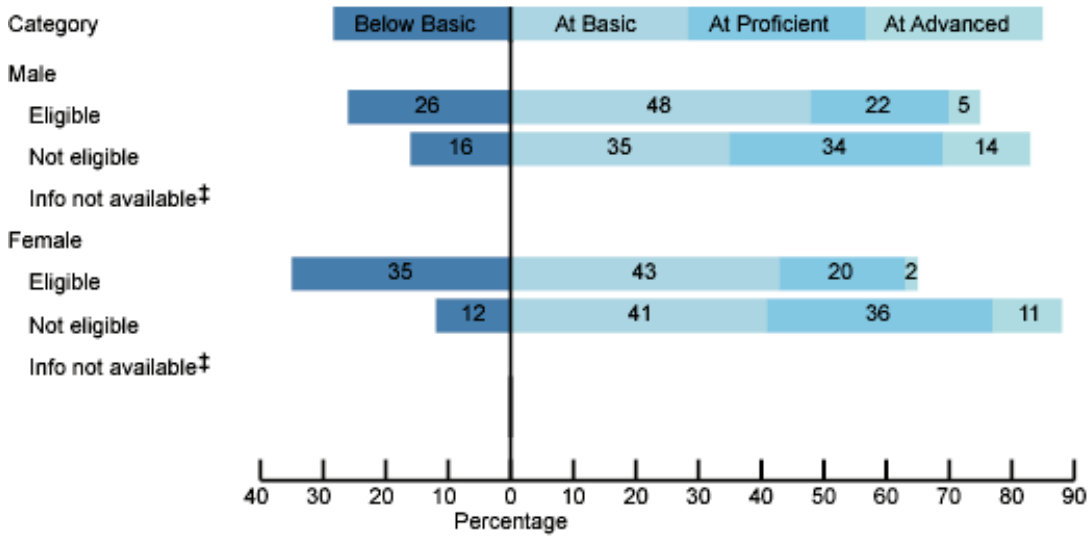
NOTE: Observed differences are not necessarily statistically significant. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

*Interpretation: Average scale scores are not the only measure of achievement provided by NAEP and do not tell the whole story of the gender and poverty gap. The above chart provides more detail about the entire spectrum of student performance. We know from previous analyses that students not eligible for FRLP posted higher average scale scores than students eligible for the program. However, this analysis reveals that many of the students eligible for FRLP are clustered at the lower end of the achievement distribution (below basic) while many of the students not eligible for the program are clustered at the top (proficient or above). Approximately one-fifth of students eligible for FRLP scored below basic, compared to only 7 percent of students not eligible for the program. Furthermore, 12 percent of male students not eligible for FRLP achieved the advanced level on the assessment compared to only 3 percent of eligible males and 1 percent of eligible females. The greatest percentage of students eligible for FRLP achieved at the basic level whereas the greatest percentage of students not eligible for FRLP achieved at the proficient level.*

## Grade 8 Math, Differences in Achievement Levels

Percentages of students at each achievement level for mathematics, grade 8  
 Gender [GENDER] x Natl School Lunch Prog eligibility (3 categories) [SLUNCH3]  
 Vermont, 2007



‡ Reporting standards not met.

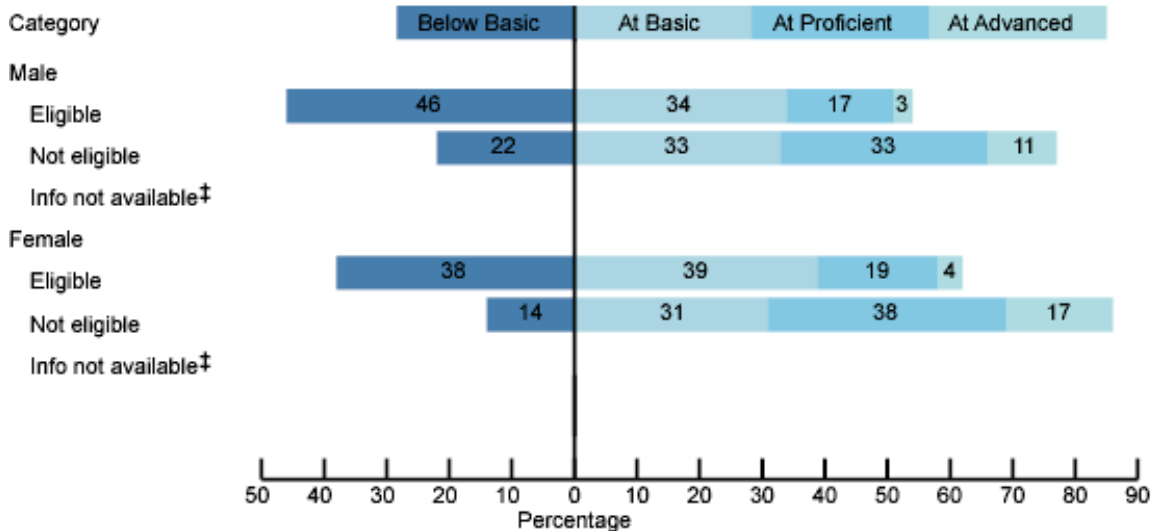
NOTE: Observed differences are not necessarily statistically significant. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

*Interpretation: As was the case in grade 4 math, students eligible for the FRLP program, especially females, struggle in math more so than their peers who are not eligible. What is unsettling about these results is that the performance of FRLP-eligible students seems to have slipped from grade 4. More male students eligible for the program scored below basic in grade 8 than in grade 4 (26% vs. 19%) and fewer scored at the proficient level (22% vs. 31%). Similarly, the percentage of female students eligible for FRLP who scored below basic increased from 21% in grade 4 to 35% in grade 8. However, students not eligible for the program moved ahead—more scored at the highest level, advanced (14% vs. 12% for males and 11% vs. 8% for females).*

## Grade 4 Reading, Differences in Achievement Levels

Percentages of students at each achievement level for reading, grade 4  
 Gender [GENDER] x Natl School Lunch Prog eligibility (3 categories) [SLUNCH3]  
 Vermont, 2007



‡ Reporting standards not met.

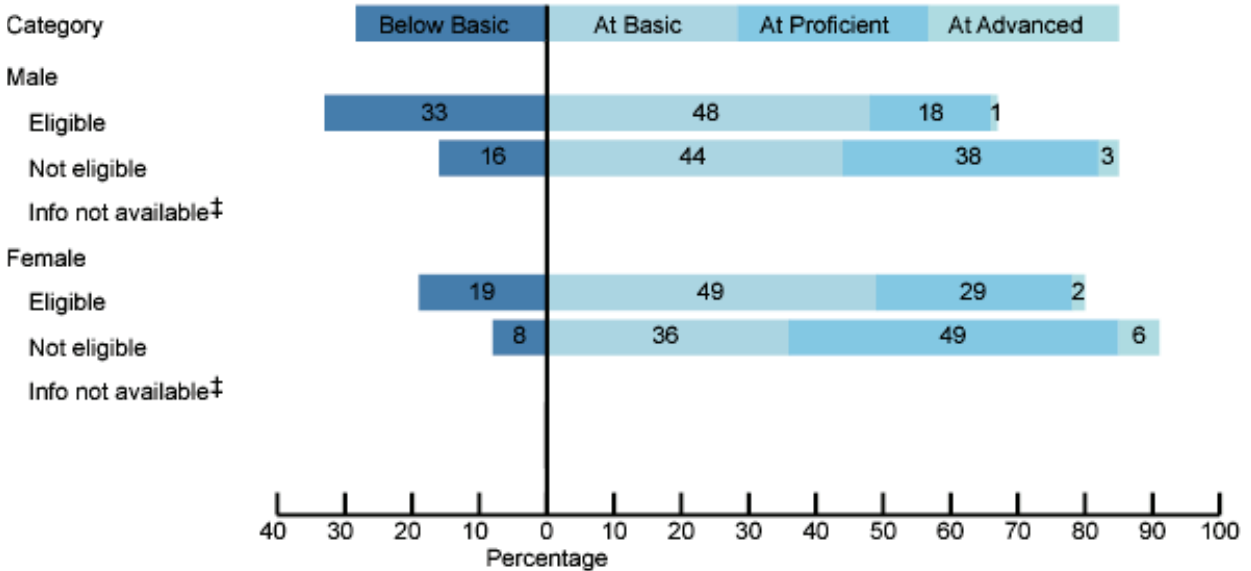
NOTE: Observed differences are not necessarily statistically significant. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Reading Assessment.

*Interpretation: The widest gap between female students not eligible for FRLP and male students eligible for the program exists in grade 4 reading. Over half of female students not eligible for the program, 55%, scored at the proficient level or above on the grade 4 reading assessment whereas only 20% of eligible male students did the same. A small percentage, 14%, of female students not eligible scored at the opposite end of the continuum, below basic. However this is where almost half, 46%, of eligible male students scored. In addition to the interplay of gender and poverty, gender alone seems to impact achievement in grade 4 reading. Although a similar percentage of male and female students not eligible for FRLP score at the basic level, this is the only aspect of the achievement distribution that parallels. More female students score at the proficient level or above than do male students and more male students score below basic than female students. It is also worth noting that 17% of female students not eligible for FRLP scored at the advanced level; this represents the highest percentage of students achieving at this level of all student demographic combinations and grade level/subject area combinations.*

## Grade 8 Reading, Differences in Achievement Levels

Percentages of students at each achievement level for reading, grade 8  
 Gender [GENDER] x Natl School Lunch Prog eligibility (3 categories) [SLUNCH3]  
 Vermont, 2007



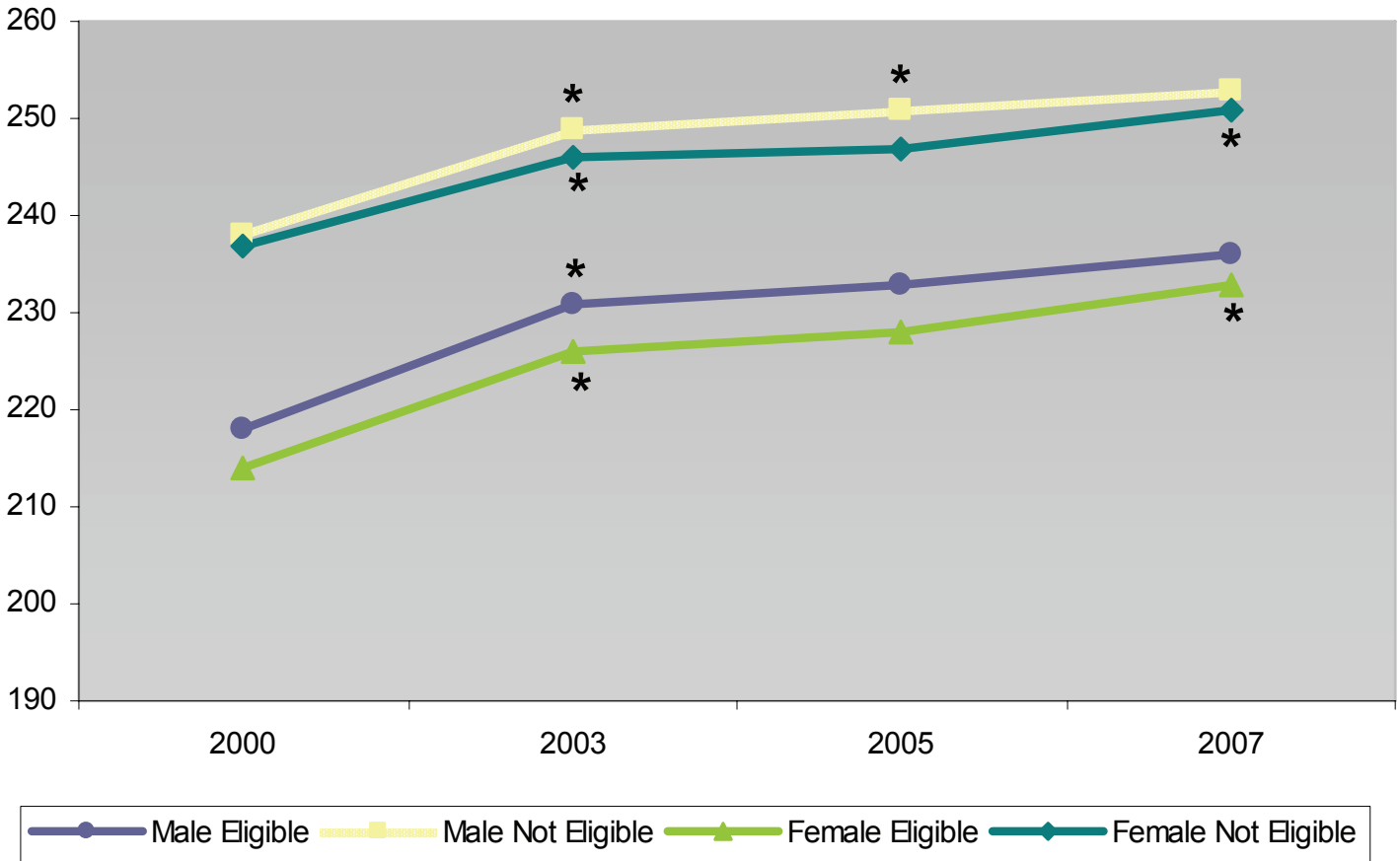
‡ Reporting standards not met.

NOTE: Observed differences are not necessarily statistically significant. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Reading Assessment.

*Interpretation: Female students not eligible for FRLP continue to hold an advantage over male students, especially those eligible for the program. An interesting shift from grade 4 to grade 8 reading, however (in terms of the performance of female students not eligible for FRLP) is that while the same percentage scored at the proficient level or above in grade 8 as in grade 4 (55%), fewer scored at the advanced level (6% vs. 17%) and more scored at the proficient level (49% vs. 38%). On the other hand, while the achievement of female students not eligible for the program slipped a bit in grade 8 compared to grade 4, the performance of female students eligible for FRLP improved. The percentage of those scoring below basic in grade 8 is exactly half of the percentage in grade 4 (19% vs. 38%). In addition, the percentage scoring at the proficient level or above rose to 31% from 23% in grade 4. Male students' performance, both those eligible and ineligible for FRLP, appears more positive in grade 8 than in grade 4 although one-third of male students eligible for FRLP score below basic. A roughly similar percentage of male students eligible and ineligible for FRLP score at the basic level but many more male students not eligible than eligible score at the higher continuum. The percentage of male students not eligible who score at the proficient level or above is more than double that of male students eligible for the program (41% vs. 19%).*

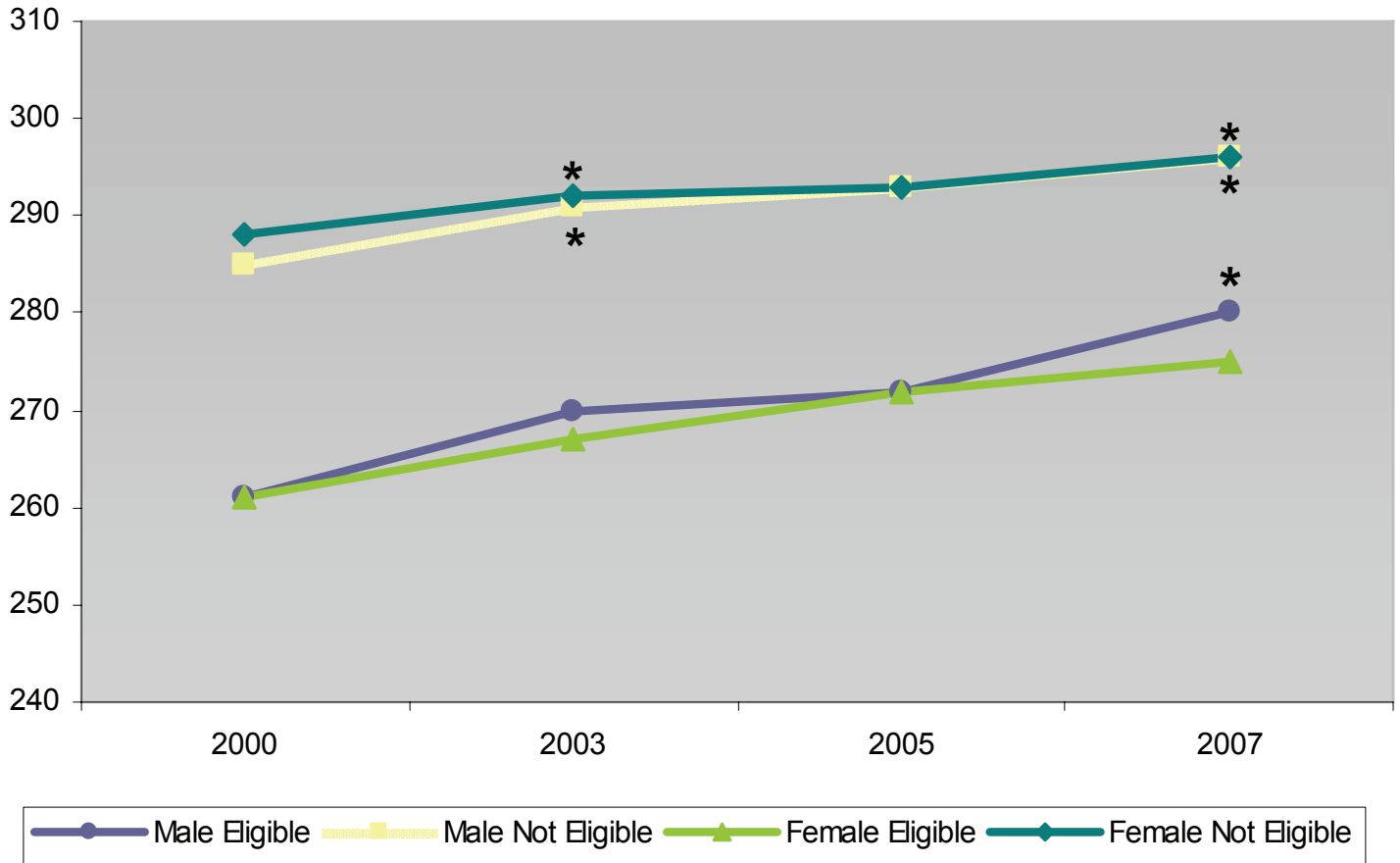
## Grade 4 Math Average Scale Score Gains Over Time: Gender and Poverty



\* Denotes statistically significant progress from the previous year.

*Interpretation: All students have demonstrated some progress, albeit halting, over the years in grade 4 math. Male students not eligible for FRLP top the charts while female students eligible for the program lag behind. However, female students, both those eligible and not eligible for FRLP, have shown significant achievement growth from 2000 to 2003 and from 2005 to 2007. While this means that the achievement gap between these two groups has not narrowed, it suggests that female students are making forward progress in math. Male students not eligible for the program posted gains in two of the past four testing administrations and male students eligible for the program posted gains in one, from 2000 to 2003. Neither group of male students experienced the gains from 2005 to 2007 of their female counterparts.*

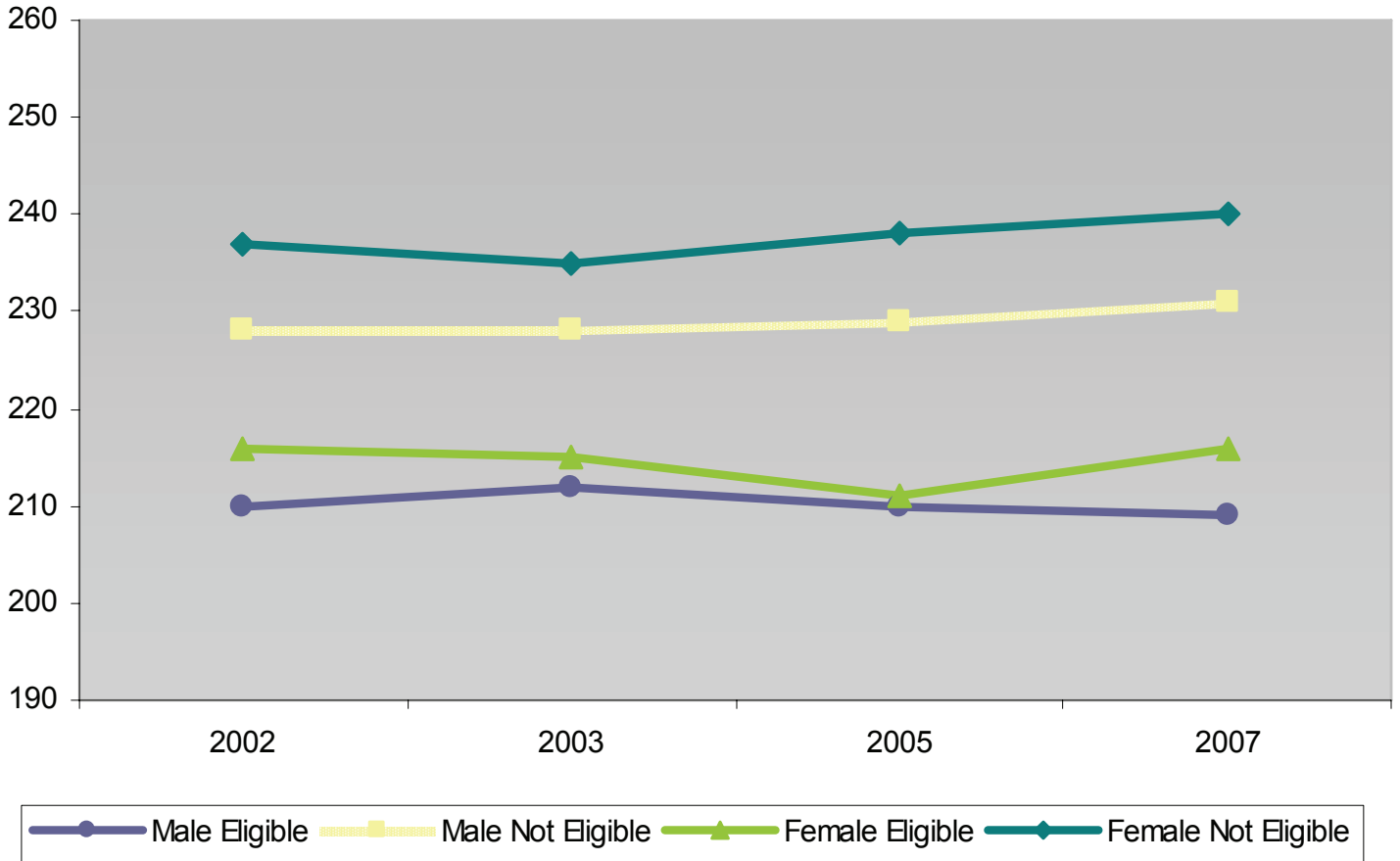
## Grade 8 Math Average Scale Score Gains Over Time: Gender and Poverty



\* Denotes statistically significant progress from the previous year.

*Interpretation: As was the case in grade 4 math, students not eligible for FRLP, both males and females, have made progress in the period between 2000 and 2007 in grade 8 math. Both groups posted statistically significant gains from 2000 to 2003 and then again from 2005 to 2007. However, their classmates eligible for the program did not see the same progress. Eligible male students did see gains from 2005 to 2007 following five previous years of stagnant growth. Female students eligible for the program have not improved demonstrably from 2000 to 2007. Thus, achievement gaps between groups have remained roughly the same for the past seven years.*

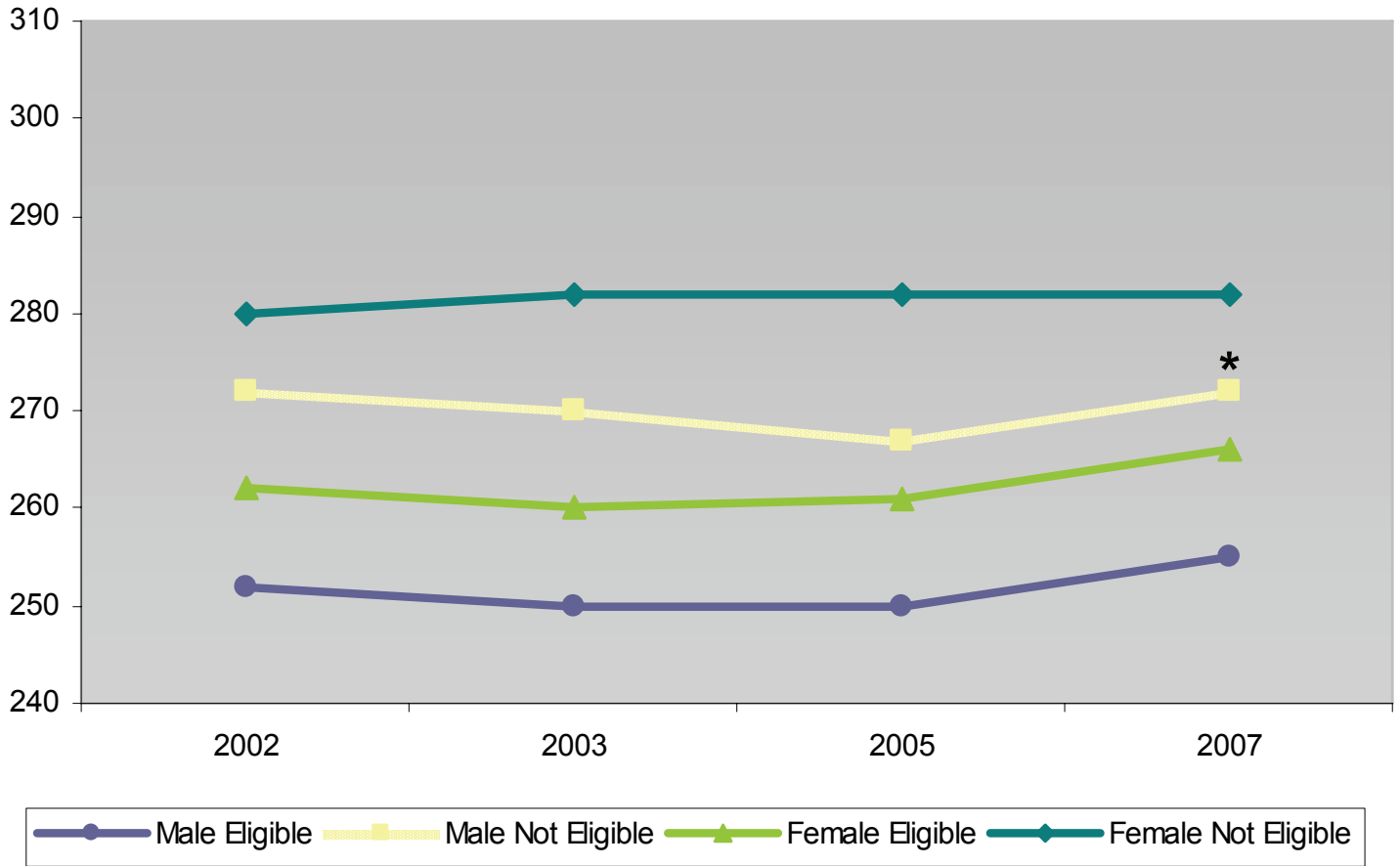
## Grade 4 Reading Average Scale Score Gains Over Time: Gender and Poverty



\* Denotes statistically significant progress from the previous year.

*Interpretation: The story in grade 4 reading is that there is no story. While student performance in grade 4 math has been rising over the years and students, both male and female and those eligible and ineligible for FRLP, have posted gains at some point in the past seven years, the same cannot be said for elementary reading achievement. From year to year, students have not made statistically significant gains or losses and performance in 2007 does not differ, statistically, from performance in 2002.*

## Grade 8 Reading Average Scale Score Gains Over Time: Gender and Poverty



\* Denotes statistically significant progress from the previous year.

*Interpretation: Trends in grade 8 reading are very similar to those in grade 4 reading—no apparent progress. Male students not eligible for FRLP posted statistically significant gains from 2005 to 2007 but achievement across all other years and for all other groups remained flat.*

## NAEP FAQ

### ***What is NAEP?***

The National Assessment of Educational Progress (NAEP), also known as "the Nation's Report Card," is the only nationally representative and continuing assessment of what America's students know and can do in various subject areas. NAEP does not provide scores for individual students or schools because results are based on a sample of students and because students take only a portion of the full NAEP assessment. No accountability measures are tied to NAEP performance.

### ***Who takes NAEP?***

NCLB requires states to participate biennially in reading and math assessments in 4<sup>th</sup> and 8<sup>th</sup> grade. NAEP does not test all students in selected grades but chooses a sample of schools to represent the state. Students who are selected to participate in NAEP take a 50-minute test in a single subject-area. In 2007, as in most years, a large number of Vermont schools were selected—approximately 85 percent of schools serving 4<sup>th</sup> grade and 100 percent of schools serving 8<sup>th</sup> grade. Assessments were administered across the state from January 22-March 2, 2007. NAEP also periodically assesses a national sample of students in additional content areas, like U.S. History, Civics and the Arts (for which Vermont schools are sometimes sampled).

### ***What is the NAEP experience like for schools?***

The Vermont Department of Education is committed to making schools' NAEP experience as positive as possible and has taken several steps to help achieve that goal. NAEP hires short-term contractors to administer the assessments in schools. The DOE has worked with the Vermont Retired Teachers Association to recruit retired educators for these positions so that those conducting the assessments are comfortable with children in school settings and are familiar with aspects such as test accommodations. In addition, the Vermont NAEP state coordinator provides Vermont-specific training for the contractors to help them better understand our NECAP assessment and accommodation policies and how they compare to NAEP. Furthermore, the state coordinator conducts frequent observations during the testing window to monitor administration procedures and elicit feedback from schools about what is working and what is not about the process. It is hoped that these efforts will make the NAEP testing process a smooth one for school staff and students. Any and all feedback from schools about their experience (as well as additional steps the state coordinator can take to improve that experience) is welcome.

### ***Why don't students and schools receive NAEP results?***

Individual students do not receive assessment results because no single child takes a complete NAEP assessment. Rather, students take a portion of the full NAEP test. As a result, results are not valid for students or even schools. The NAEP sampling frame ensures valid results *for the state level only*. The Vermont Department of Education uses these state-level results to compare to trends on the NECAP and to learn more about such issues as the gender and poverty gap.

### ***Who is our state coordinator?***

Susan Hayes is the Vermont NAEP state coordinator. If you have any questions about NAEP or if you have any feedback about your school's testing experience this year, please contact Susan at [susan.hayes@state.vt.us](mailto:susan.hayes@state.vt.us) or (802) 828-5892.

Schedule of NAEP assessments 2007-2017

<b>YEAR</b>	<b>NATIONAL</b> <i>(VT schools <u>may</u> be sampled)</i>	<b>STATE</b> <i>(VT schools <u>will</u> be sampled)</i>	<b>LONG-TERM TREND</b> <i>(VT schools <u>may</u> be sampled)</i>
<b>2007</b>	reading (4, 8) mathematics (4, 8) writing (8, 12)	reading (4, 8) mathematics (4, 8) writing (8)	
<b>2008</b>	arts (8)		reading mathematics
<b>2009</b>	reading <sup>1</sup> mathematics science <sup>1</sup> high school transcript study	reading (4, 8) <sup>1</sup> mathematics (4, 8) science (4, 8) <sup>1</sup>	
<b>2010</b>	U.S. history civics geography <sup>1</sup>		
<b>2011</b>	reading (4, 8) mathematics (4, 8) writing <sup>1</sup>	reading (4, 8) mathematics (4, 8) writing (4, 8) <sup>1</sup>	
<b>2012</b>	world history (12) <sup>1</sup> foreign language (12) <sup>1</sup> probe: technological literacy (special study) <sup>1</sup>		reading mathematics
<b>2013</b>	reading mathematics science high school transcript study	reading (4, 8) mathematics (4, 8) science (4, 8)	
<b>2014</b>	U.S. history <sup>1</sup> civics <sup>1</sup> geography		
<b>2015</b>	reading (4, 8) mathematics (4, 8) writing	reading (4, 8) mathematics (4, 8) writing (4, 8)	
<b>2016</b>	arts (8)		reading mathematics
<b>2017</b>	reading mathematics science high school transcript study	reading (4, 8) mathematics (4, 8) science (4, 8)	

<sup>1</sup> Updated or new framework is planned for implementation for this subject.