MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

Karen B. Salmon, Ph.D.
State Superintendent of Schools

TO: Members of the State Board of Education

FROM: Karen B. Salmon, Ph.D.

DATE: May 22, 2018

SUBJECT: Overview of National Assessment of Educational Progress (NAEP) Results, 2017

PURPOSE:

The National Assessment of Educational Progress (NAEP) results for 2017 were released on April 10, 2018. This presentation will give the Board an overview of the 2017 national results, as well as Maryland's **r**esults, for assessments in mathematics and reading. Baltimore City results will also be provided. Assessment result trends over time will be reviewed.

BACKGROUND/HISTORICAL PERSPECTIVE:

From the NAEP website: https://nces.ed.gov/nationsreportcard/about/

"The National Assessment of Educational Progress (NAEP) is the largest nationally representative and continuing assessment of what America's students know and can do in various subject areas. Assessments are conducted periodically in mathematics, reading, science, writing, the arts, civics, economics, geography, United States History, and in Technology and Engineering Literacy (TEL). In 2017, NAEP began administering digitally based assessments for mathematics, reading, and writing, with additional subjects to be added in 2018 and 2019.

Since NAEP assessments are administered uniformly using the same sets of test booklets across the nation, NAEP results serve as a common metric for all states and selected urban districts. The assessment stays essentially the same from year to year, with only carefully documented changes. This permits NAEP to provide a clear picture of student academic progress over time.

NAEP provides results on subject-matter achievement, instructional experiences, and school environment for populations of students (e.g., all fourth-graders) and groups within those populations (e.g., female students, Hispanic students). NAEP does not provide scores for individual students or schools, although state NAEP can report results by selected large urban districts. NAEP results are based on representative samples of students at grades 4, 8, and 12 for the main assessments, or samples of students at ages 9, 13, or 17 years for the long-term trend assessment."

EXECUTIVE SUMMARY:

The following information will be provided:

1. Overview of NAEP test: Content, administration, sampling, and scoring
2. Inclusion of special education students, Maryland data and trends
3. Average scale score and percent at/above proficiency, Maryland results and trends
4. Average scale score, national comparisons
5. Average scale score at highest and lowest percentiles, Maryland results and trends
6. Average scale score of student groups, Maryland results and trends
7. Baltimore City results and trends

ACTION:

No action is necessary, for discussion only.

National Assessment of Educational Progress 2017 Results

STATE BOARD MEETING

May 22, 2018

National Assessment of Educational Progress (NAEP)
2017 Results

1. Overview of NAEP test: Content, administration, sampling, and scoring
2. Inclusion of special education students, Maryland data and trends
3. Average scale score and percent at/above proficiency, Maryland results and trends
4. Average scale score, national comparisons
5. Average scale score at highest and lowest percentiles, Maryland results and trends
6. Average scale score of student groups, Maryland results and trends
7. Baltimore City results and trends

National Assessment of Educational Progress (NAEP) **Overview**

- NAEP is a nationally representative assessment of students in mathematics, reading, science, writing, arts, civics, economics, geography, history, and Technology and Engineering Literacy (TEL)
- NAEP assesses students' knowledge in content defined by NAEP frameworks
- Fourth and eighth grade reading and math are assessed every two years
- Tests are administered to a sample of schools, nationwide:
  - All 50 states, DC, Puerto Rico, Department of Defense school system
  - 27 districts participate in the Trial Urban District Assessment (TUDA)
- The 2017 National NAEP sample consisted of:
  - Fourth grade: about 150,000 students each for reading and math representing about 7,800 schools
  - Eighth grade: about 142,000 students (reading) and 145,000 students (math) representing 6,500 schools

National Assessment of Educational Progress (NAEP) **Administration**

- The NAEP reading and mathematics assessment consists of three sections
- Total test time is approximately one hour and thirty minutes
  - Two thirty minute sections with content questions
  - One thirty minute section with a student survey
- Each student takes reading OR math, but not both
- In 2017, 80 percent of students tested with digitally based assessments (DBA), and 20 percent with paper
  - To ensure comparability of results, NAEP randomly assigned students to each format
  - DBA was piloted in 2015
- NAEP administers all assessments, and provides all technology

National Assessment of Educational Progress (NAEP) **Sampling Process**

- NAEP performance is based on a sample of 3 percent of students in each state
- NAEP identifies schools whose students reflect the demographics of a specific jurisdiction (nation, a state, or district)
  - Schools are first classified into groups, first by type of location (rural, suburban, or urban) and then by the racial/ethnic composition of the schools within those locations
  - Schools are then sorted by school-level results on state achievement tests to ensure that schools with varying levels of student performance are represented in the sample
- Students at sampled schools are randomly selected for participation; every student in a sampled school has an equal probability of being selected
- Psychometric weighting is applied to individual students within the sample to align with the population of the nation, state, and district
- NAEP Inclusion Policy defines specific inclusion goals at national, state, and district levels:
  - 95 percent inclusion of all students selected for the NAEP sample
  - 85 percent inclusion of those identified as Students With Disability (SWD) and English Learners (EL)

Resources: https://nces.ed.gov/nationsreportcard/about/samplesfaq.aspx https://www.nationsreportcard.gov/focus_on_naep/#/reports/sampling

NAEP Sampling in Maryland, Reading and Mathematics, 2017

	4th Grade Reading	4th Grade Mathematics	8th Grade Reading	8th Grade Mathematics
Total Enrollment	69,182		64,522	
Sample Size per Content Area (estimated)	**3,500**	**3,500**	**3,200**	**3,200**
State Target/Weighted Sample	2,100	2,100	1,860	1,860
Students with Disabilities	320	320	260	260
English Learners	150	150	55	55
FARMS	960	960	900	900
Baltimore City Sample	**1,100**	**1,100**	**1,000**	**1,000**

Resources: https://www.nationsreportcard.gov http://marylandpublicschools.org/about/Documents/DCAA/SSP/20162017Student/2017EnrollbyRace.pdf

NAEP Sample

Grade 4 Counts by LEA, 2017

Each school tests roughly 20 students per content area

Resources:
https://www.nationsreportcard.gov

http://marylandpublicschools.org/about/Documents/DCAA/SSP/20162017Student/2017EnrollbyRace.pdf

District Name	Total District Population	# 4th Grade Students in District	# 4th Grade Students Took NAEP	% 4th Grade Students Took NAEP	# of Schools Took NAEP
Allegany County	8,702	657	80	12.2%	2
Anne Arundel County	81,379	6,518	600	9.2%	15
Baltimore City	82,354	6,524	2,000	30.7%	50
Baltimore County	112,139	8,970	600	6.7%	15
Calvert County	15,950	1,197	160	13.4%	4
Caroline County	5,705	432	40	9.3%	1
Carroll County	25,255	1,879	120	6.4%	3
Cecil County	15,633	1,230	200	16.3%	5
Charles County	26,390	1,975	120	6.1%	3
Dorchester County	4,816	387	40	10.3%	1
Frederick County	41,317	3,210	160	5.0%	4
Garrett County	3,833	297	0	0.0%	0
Harford County	37,426	2,851	160	5.6%	4
Howard County	55,626	4,243	400	9.4%	10
Kent County	2,001	126	0	0.0%	0
Montgomery County	159,010	12,198	920	7.5%	23
Prince George's County	130,814	10,339	680	6.6%	17
Queen Anne's County	7,751	569	40	7.0%	1
St. Mary's County	18,067	1,444	40	2.8%	1
Somerset County	2,958	208	40	19.2%	1
Talbot County	4,593	340	0	0.0%	0
Washington County	22,545	1,824	80	4.4%	2
Wicomico County	14,889	1,270	80	6.3%	2
Worcester County	6,667	494	0	0.0%	0
State Totals	885,820	69,182	6,560	9.5%	189

NAEP Sample

Grade 8 Counts by LEA, 2017

Each school tests roughly 20 students per content area

Resources:
https://www.nationsreportcard.gov

http://marylandpublicschools.org/about/Documents/DCAA/SSP/20162017Student/2017EnrollbyRace.pdf

District Name	Total District Population	# 8th Grade Students in District	# 8th Grade Students Took NAEP	% 8th Grade Students Took NAEP	# of Schools Took NAEP
Allegany County	8,702	621	40	6.4%	1
Anne Arundel County	81,379	5,916	480	8.1%	12
Baltimore City	82,354	5,420	1,920	35.4%	48
Baltimore County	112,139	8,095	400	4.9%	10
Calvert County	15,950	1,325	80	6.0%	2
Caroline County	5,705	406	80	19.7%	2
Carroll County	25,255	2,025	120	5.9%	3
Cecil County	15,633	1,148	80	7.0%	2
Charles County	26,390	2,009	200	10.0%	5
Dorchester County	4,816	338	40	11.8%	1
Frederick County	41,317	3,121	320	10.3%	8
Garrett County	3,833	295	0	0.0%	0
Harford County	37,426	2,835	160	5.6%	4
Howard County	55,626	4,329	400	9.2%	10
Kent County	2,001	150	0	0.0%	0
Montgomery County	159,010	11,644	560	4.8%	14
Prince George's County	130,814	9,113	440	4.8%	11
Queen Anne's County	7,751	590	40	6.8%	1
St. Mary's County	18,067	1,294	80	6.2%	2
Somerset County	2,958	210	40	19.0%	1
Talbot County	4,593	317	80	25.2%	2
Washington County	22,545	1,734	160	9.2%	4
Wicomico County	14,889	1,037	80	7.7%	2
Worcester County	6,667	494	40	8.1%	1
State Totals	885,820	64,522	5,840	9.1%	146

National Assessment of Educational Progress (NAEP)
Overview: Scoring

- Performance is reported as:
  - Average math and reading scale score (0—500)
  - Achievement level (Basic, Proficient, Advanced)
- Students in all jurisdictions take the same test, and the "assessment stays essentially the same from year to year, with only carefully documented changes. This permits NAEP to provide a clear picture of student academic progress over time."
- Scores are not available at the student, school, or district level, with the exception of TUDA districts
- All tests are scored, validated, and reported by NAEP
- All trends are calculated and reported by NAEP
  - The samples are not the same from year to year
  - Results and trends do not support causal claims about particular policies

Summary of Maryland NAEP 2017 Results

- Maryland met inclusion goals in all subjects and grades for all students, students with disabilities, and English language learners.
- Math average scale score and percent at/above proficient did not significantly change from 2015 in either grade in Maryland.
- Reading average scale score and percent at/above proficient did not significantly change from 2017 in either grade in Maryland.
- Depending on the subject/grade, between four and 24 other states have average scale scores significantly higher than Maryland. When scale scores are adjusted to account for demographic differences (so that students are compared to demographically similar peers), between 3 and 11 other states have average scale scores significantly higher than Maryland.
- In most subjects/grades, Maryland average scores at the highest percentiles are slightly higher compared to 2015 and/or average scores at the lowest percentiles are slightly lower.
- In nearly all subjects/grades, there were no significant changes in the average score of student groups in 2017 compared to 2015, and no significant changes in the achievement gap between student groups.

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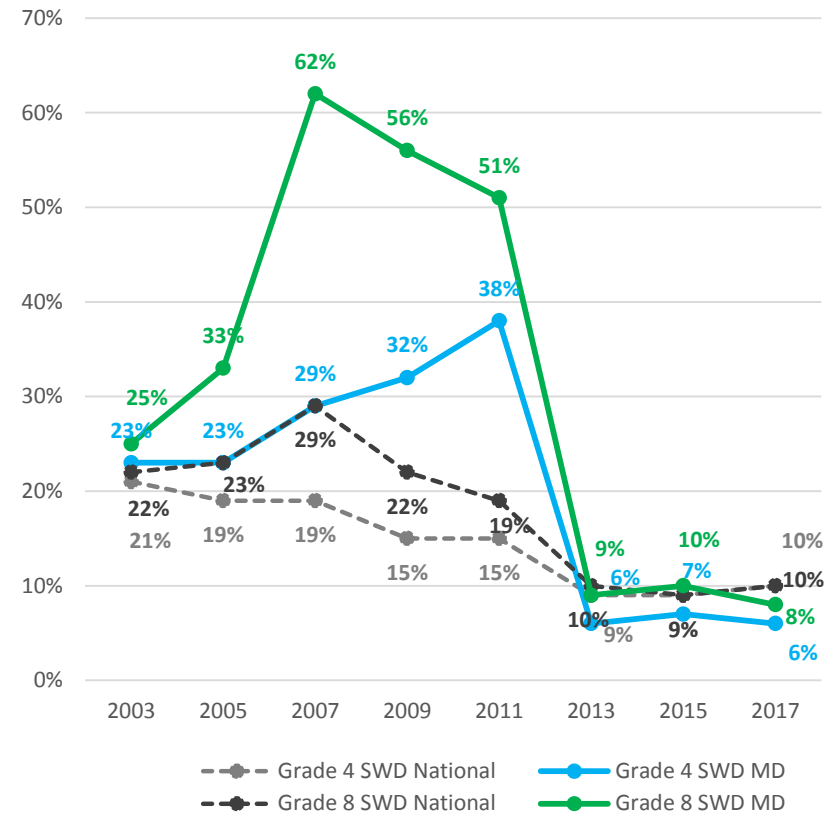
Maryland met NAEP inclusion goals in all categories, grades, and subjects.

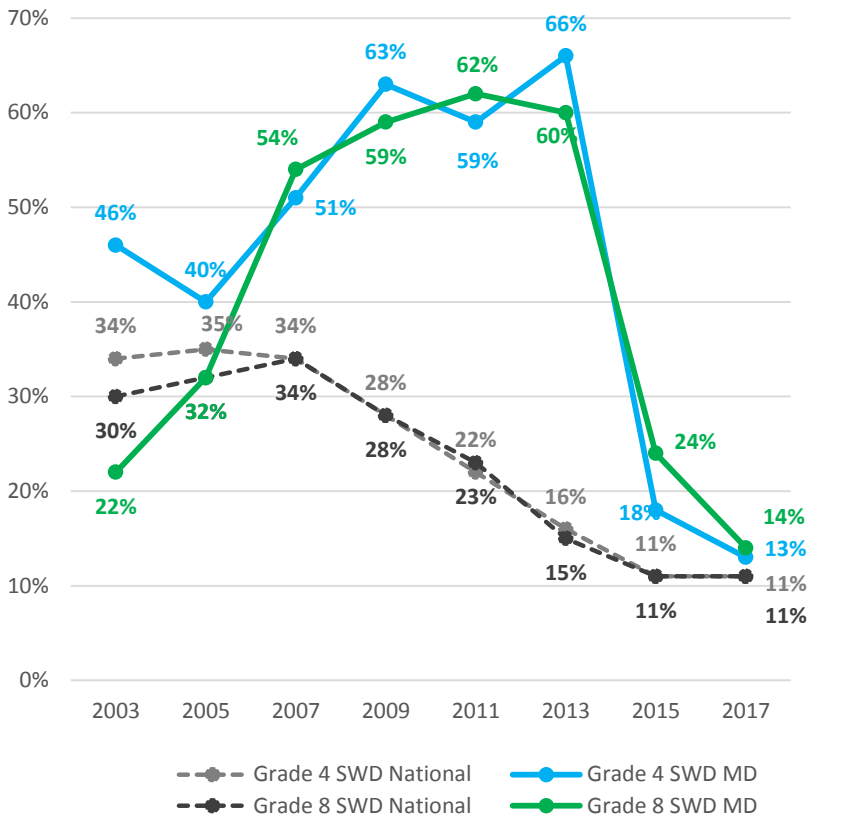
Specifically, Maryland tested at least 85 percent of students in the testing sample who were identified as students with disabilities.

(Students may be excluded because their IEP requires accommodations not allowed by NAEP.)

NAEP Grade 4 and 8 Students with Disabilities Mathematics Exclusion Rates

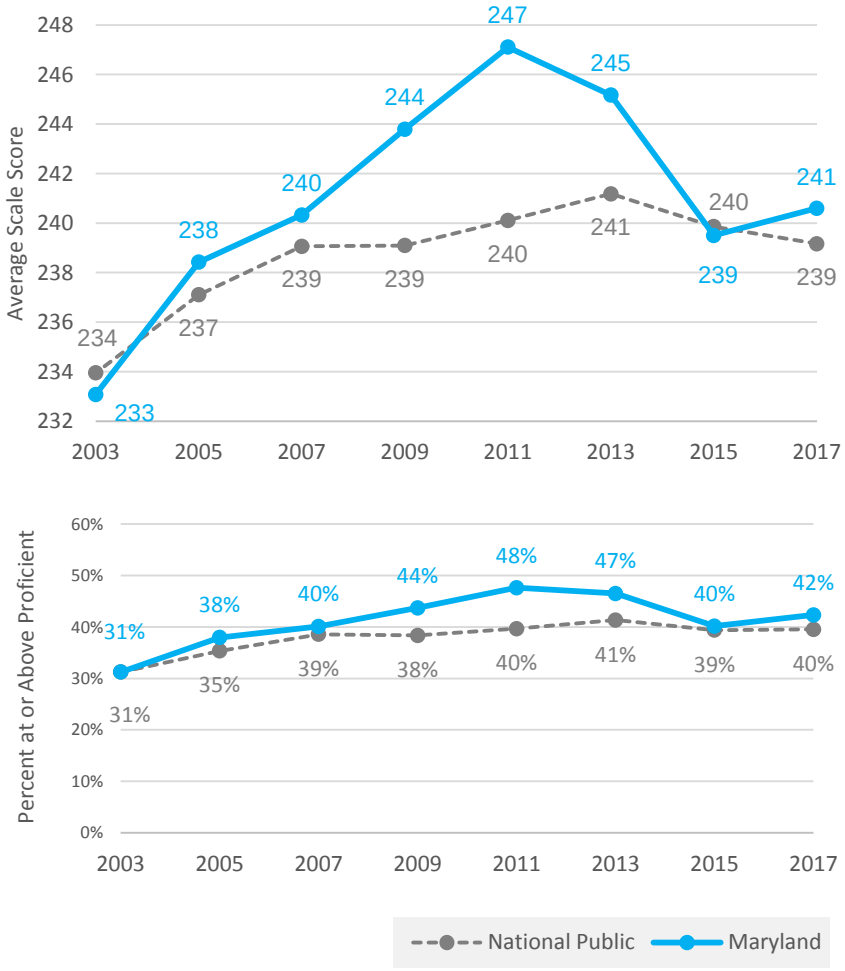


NAEP Grade 4 and 8 Students with Disabilities Reading Exclusion Rates

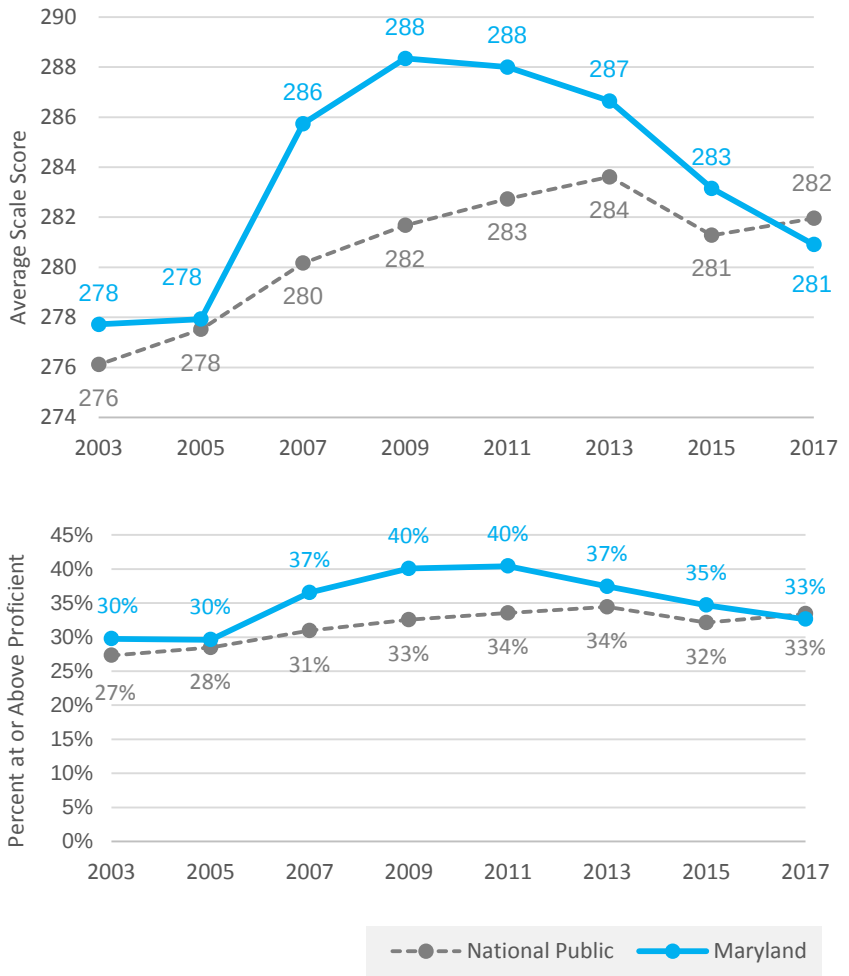


The MATH average scale score and percent at/above proficient did not significantly change in either grade for Maryland students, or nationwide.

GRADE 4 MATH



GRADE 8 MATH



*Significant change from 2015, p<.05

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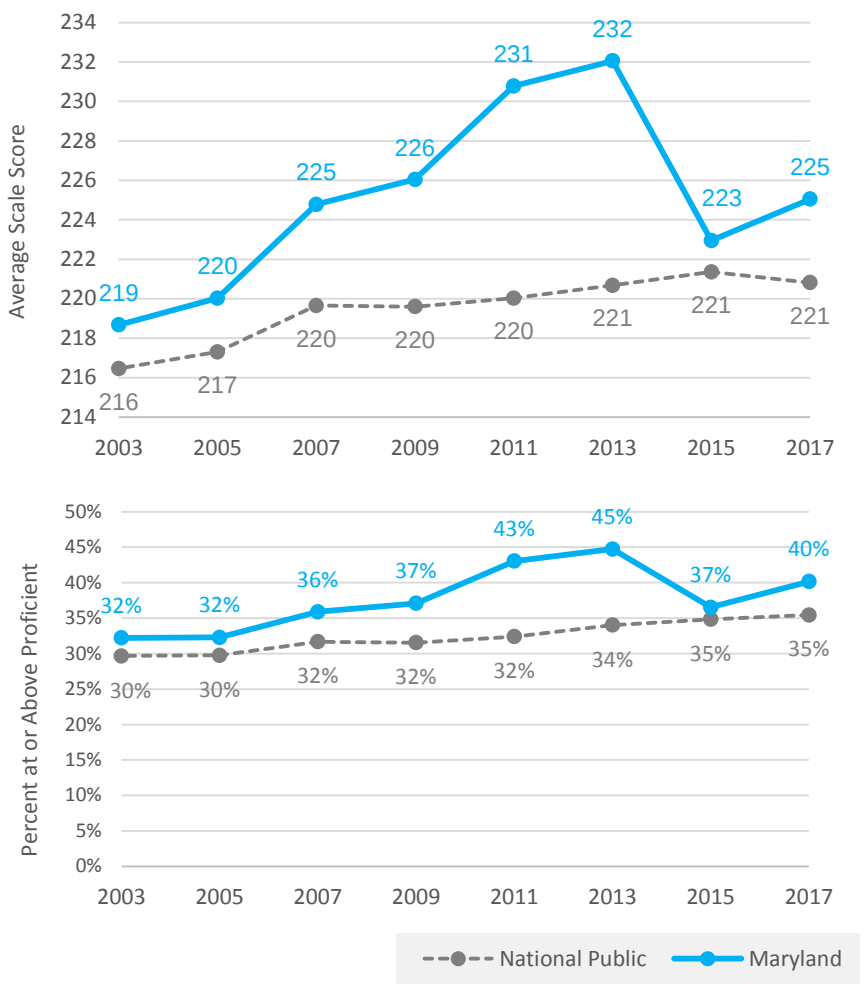
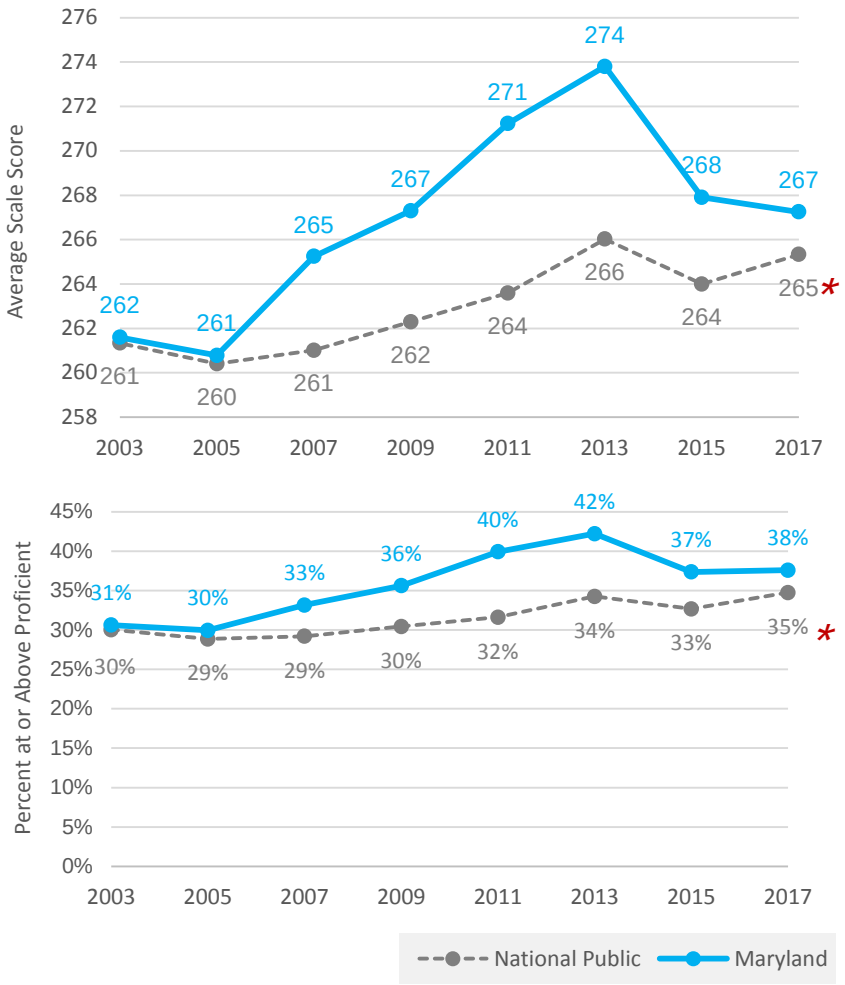
The READING average scale score and percent at/above proficient did not significantly change in either grade in Maryland; nationally, grade 8 students made a small gain.

GRADE 4 READING



GRADE 8 READING



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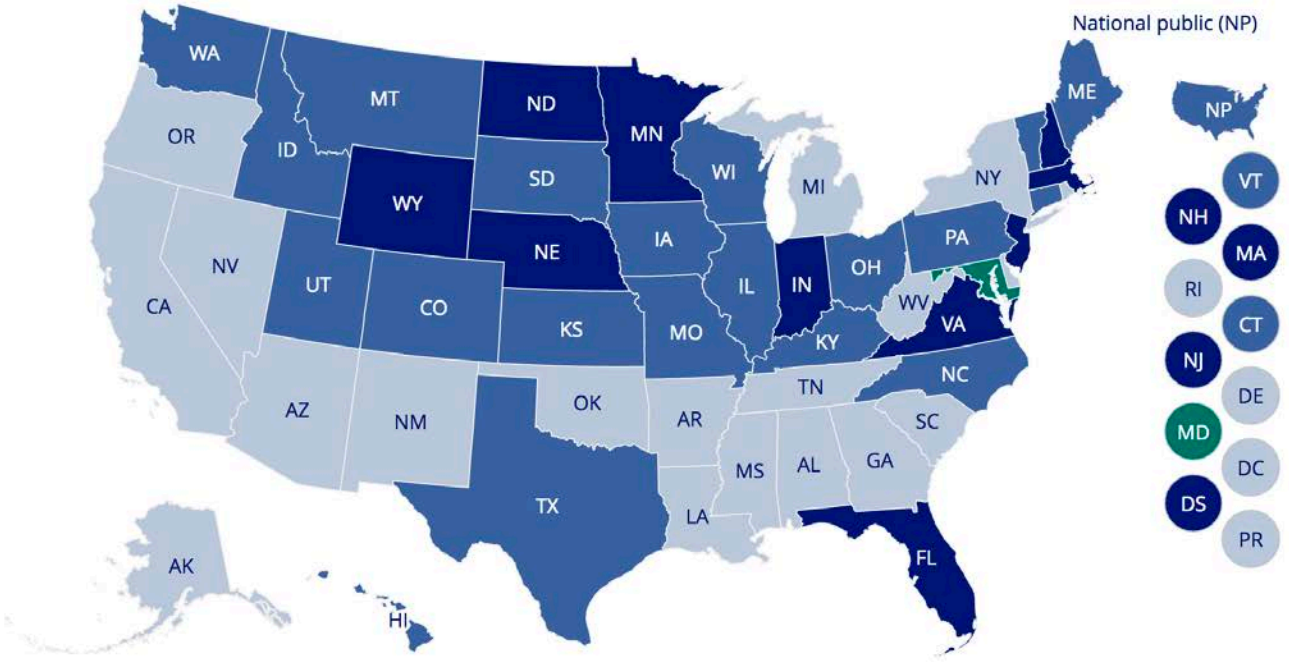
GRADE 4 | MATHEMATICS | 2017

AVERAGE SCALE SCORES

POINTS

2017 Maryland average score (0-500)	249–244	243–238	237–190	
MD 241	11 jurisdictions ↑ performed significantly higher	20 jurisdictions ◆ not significantly different	21 jurisdictions ↓ performed significantly lower	0 jurisdictions ⊘ no assessment / data not available

Mathematics, grade 4
Difference in average scale scores between all jurisdictions and Maryland, for All students [TOTAL] , 2017



Graphic adapted from NAEP website https://bit.ly/2HSSHFQ

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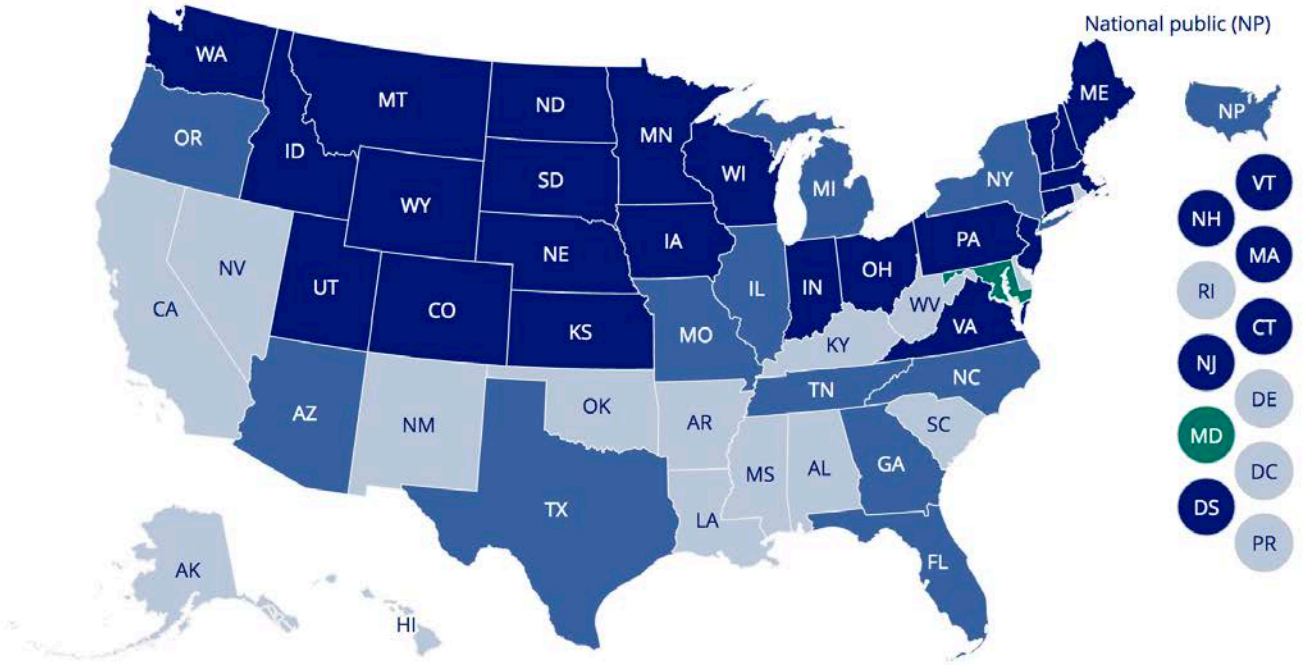
POINTS

GRADE 8 | MATHEMATICS | 2017

AVERAGE SCALE SCORES

2017 Maryland average score (0-500)	297–284	283–279	278–225	
MD 281	24 jurisdictions ↑ performed significantly higher	11 jurisdictions ◆ not significantly different	17 jurisdictions ↓ performed significantly lower	0 jurisdictions ⊘ no assessment / data not available

Mathematics, grade 8
Difference in average scale scores between all jurisdictions and Maryland, for All students [TOTAL] , 2017



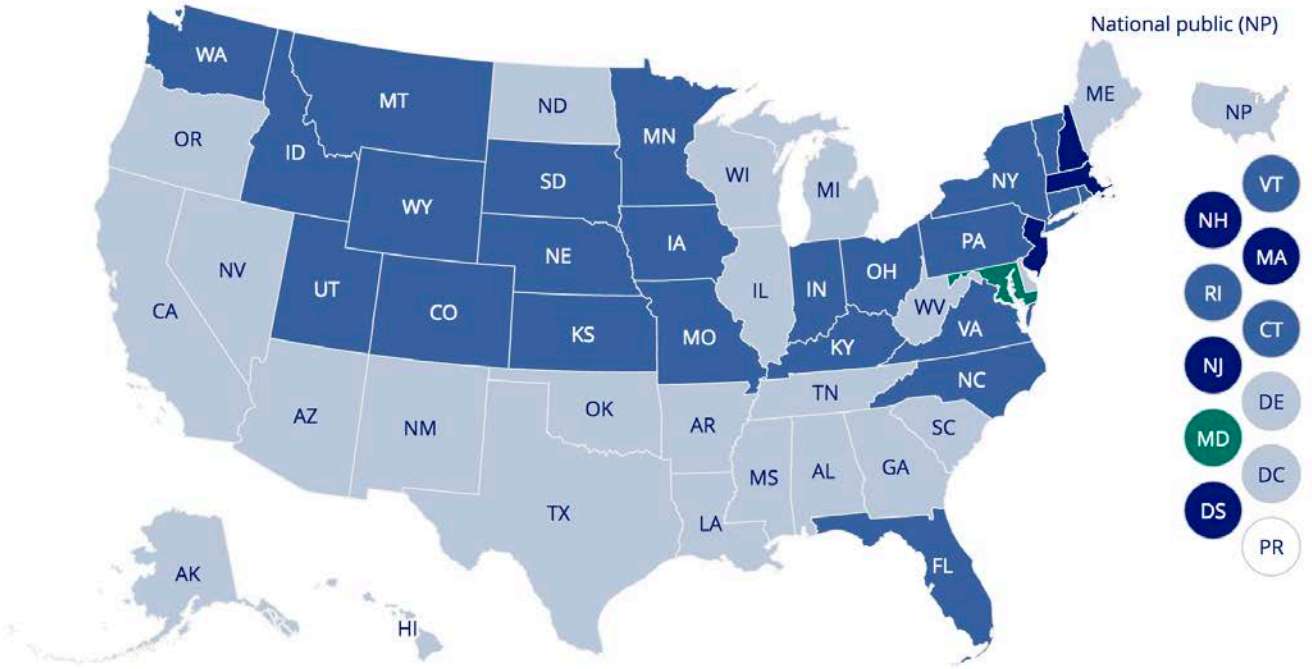
Graphic adapted from NAEP website https://bit.ly/2HSSHFQ

GRADE 4 | READING | 2017

AVERAGE SCALE SCORES

	POINTS			
	236–229	228–222	221–207	
2017 Maryland average score (0-500)	4 jurisdictions ↑ performed significantly higher	23 jurisdictions ◆ not significantly different	24 jurisdictions ↓ performed significantly lower	1 jurisdiction ⊘ no assessment / data not available
MD 225				

Reading, grade 4
Difference in average scale scores between all jurisdictions and Maryland, for All students [TOTAL] , 2017



Graphic adapted from NAEP website https://bit.ly/2HSSHFQ

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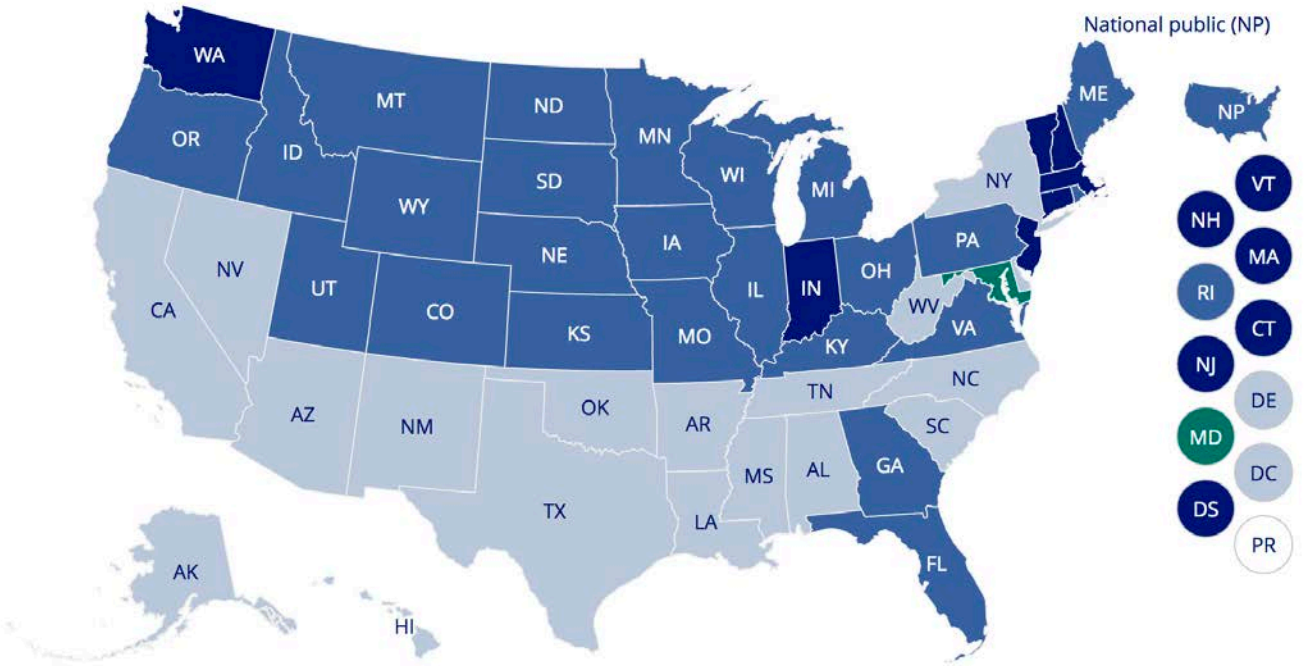
GRADE 8 | READING | 2017

AVERAGE SCALE SCORES

POINTS

2017 Maryland average score (0-500)	280–272	271–265	264–247	
MD 267	8 jurisdictions ↑ performed significantly higher	24 jurisdictions ◆ not significantly different	19 jurisdictions ↓ performed significantly lower	1 jurisdiction ⊘ no assessment / data not available

Reading, grade 8
Difference in average scale scores between all jurisdictions and Maryland, for All students [TOTAL] , 2017

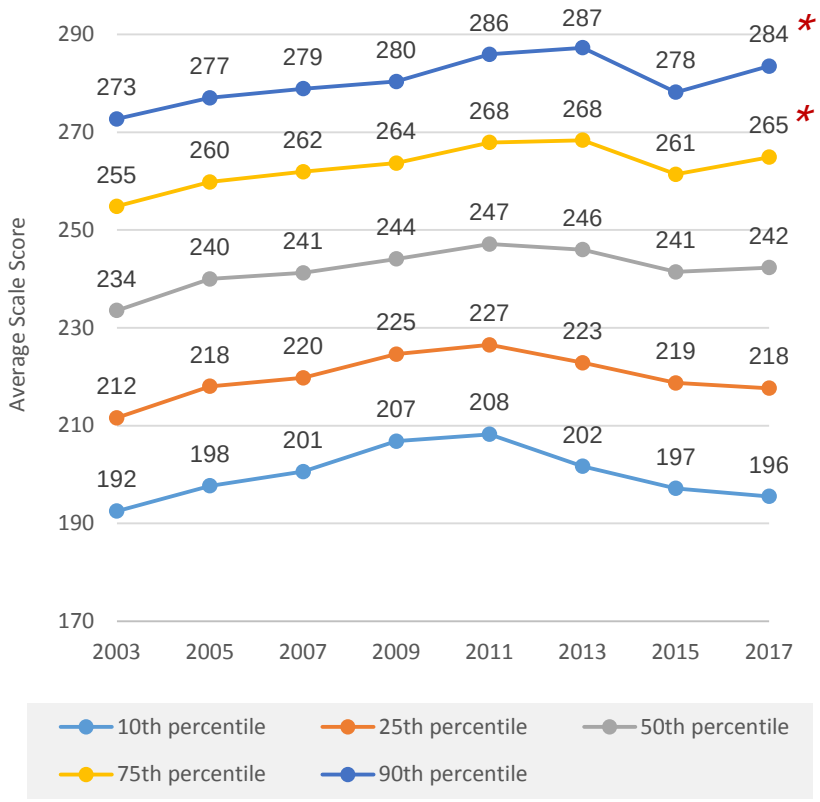


Graphic adapted from NAEP website https://bit.ly/2HSSHFQ

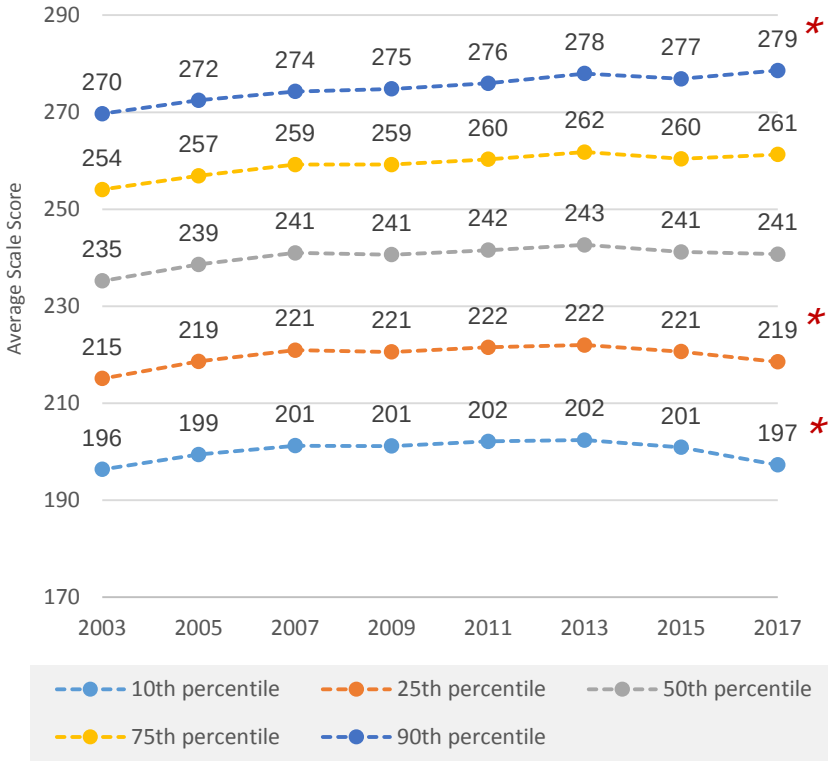
In GRADE 4 MATH, between 2015 and 2017 Maryland average scores at the highest percentiles increased.

(Nationally, the average score at the highest percentile increased, and scores at the lowest percentiles decreased.)

MARYLAND, GRADE 4 MATH



NATIONAL, GRADE 4 MATH

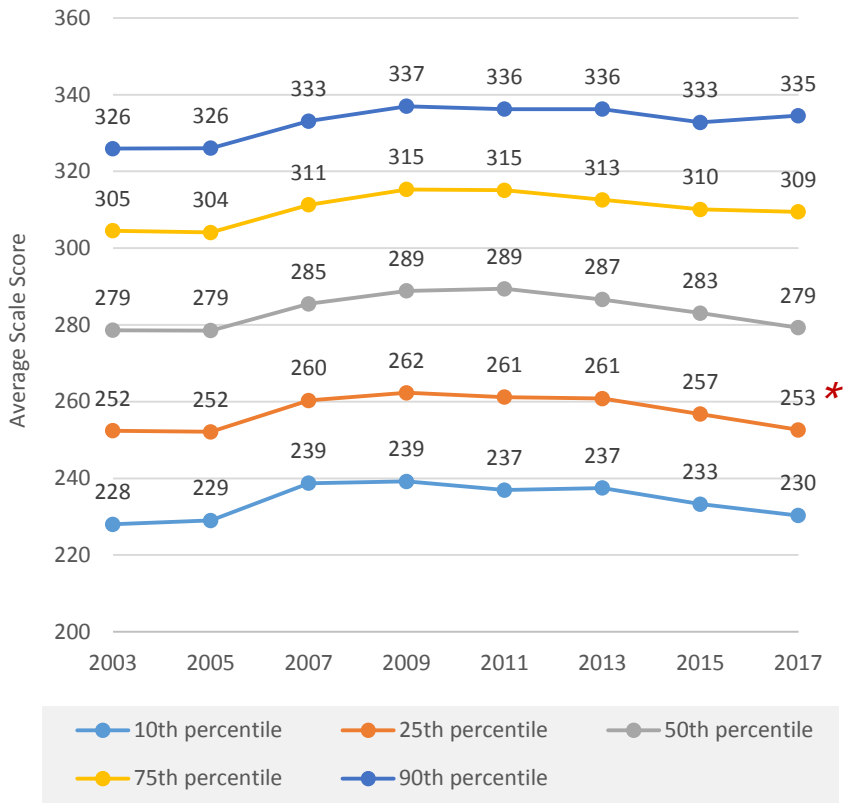


*Significant change from 2015, p<.05

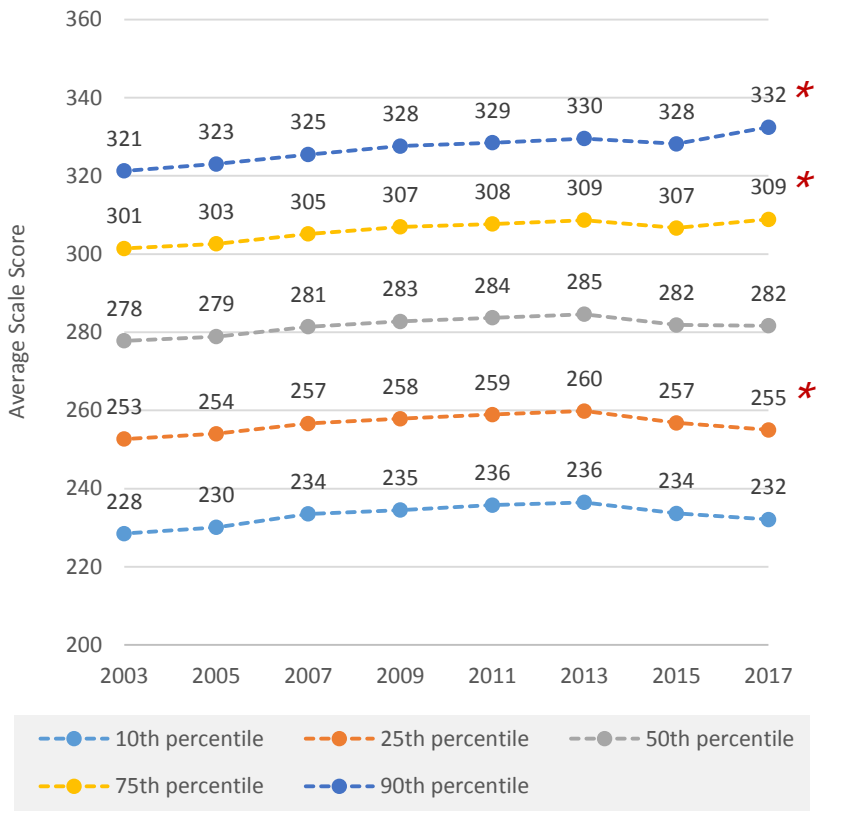
In GRADE 8 MATH, between 2015 and 2017 Maryland average scores at most percentiles did not change.

(Nationally, average scores at the highest percentiles increased.)

MARYLAND, GRADE 8 MATH



NATIONAL, GRADE 8 MATH

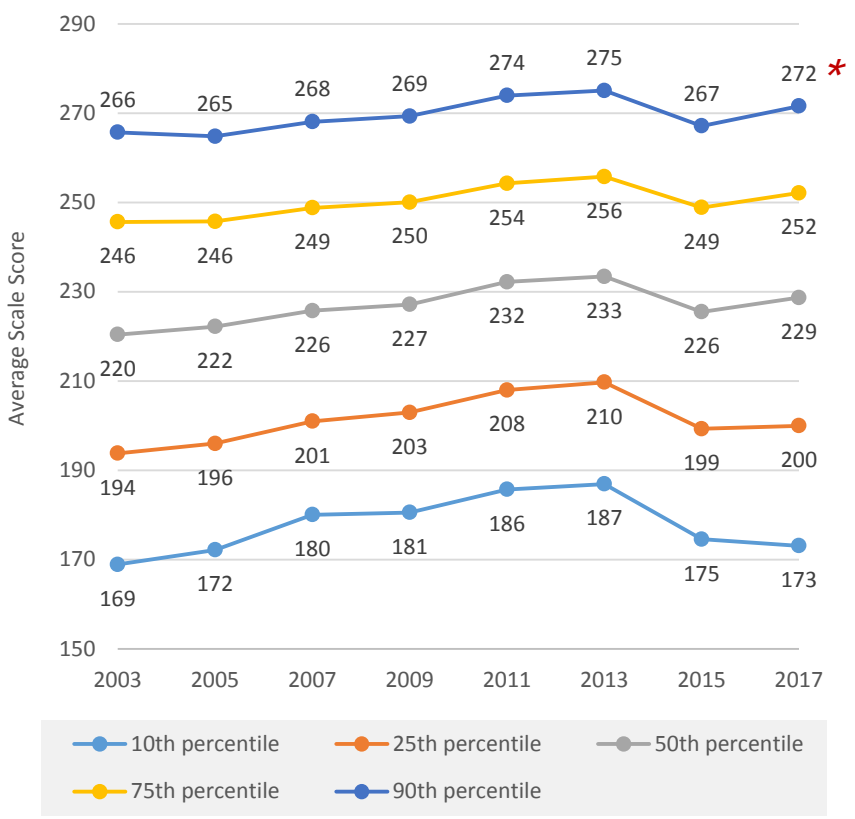


*Significant change from 2015, p<.05

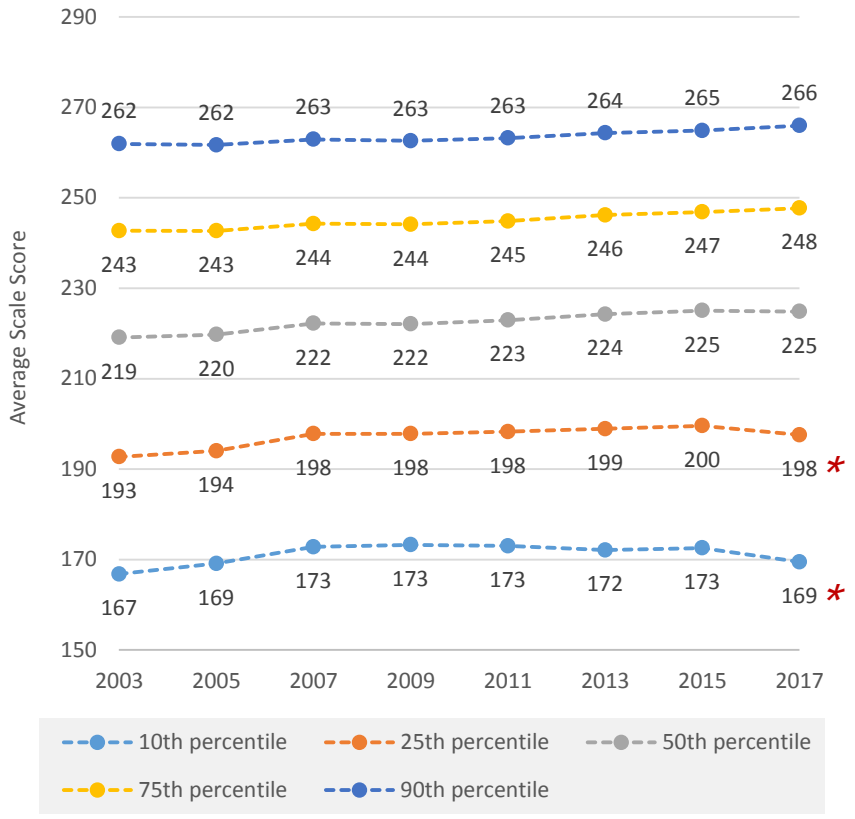
In GRADE 4 READING, between 2015 and 2017 the Maryland average score at the highest percentile increased.

(Nationally, average scores at the lowest percentiles decreased.)

MARYLAND, GRADE 4 READING



NATIONAL, GRADE 4 READING

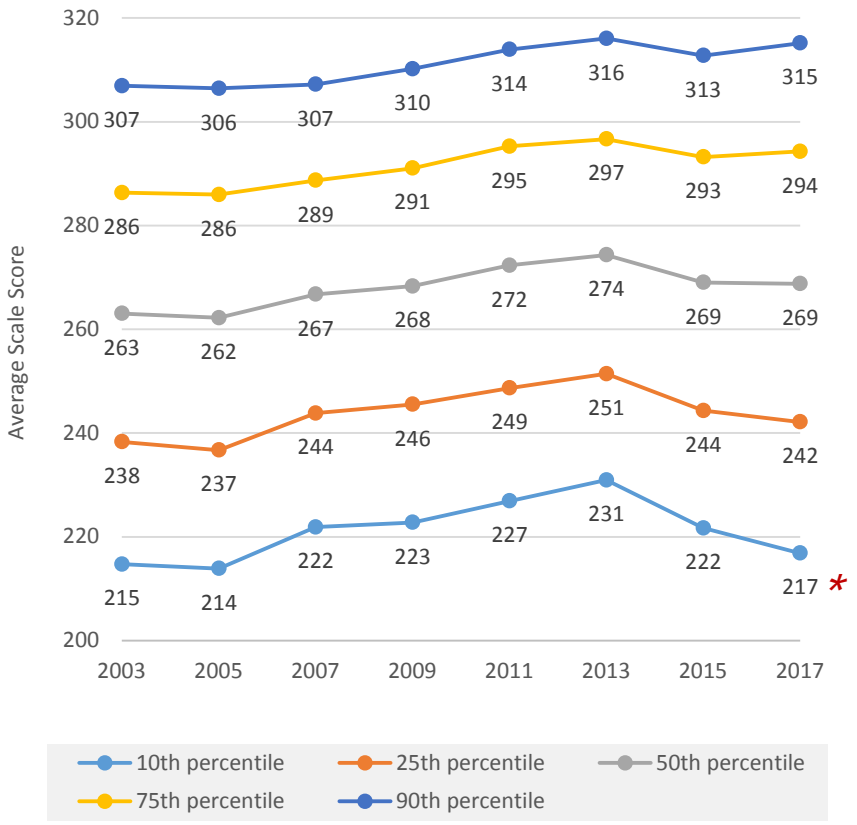


*Significant change from 2015, p<.05

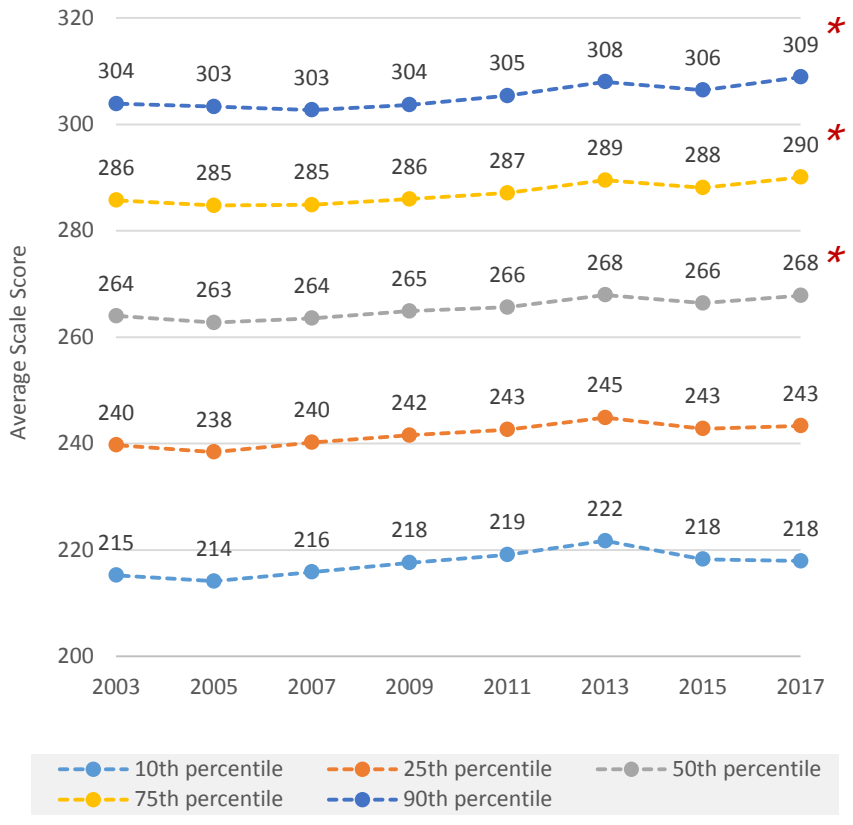
In GRADE 8 READING, between 2015 and 2017 the Maryland average score at the lowest percentile decreased.

(Nationally, average scores at the highest percentiles increased.)

MARYLAND, GRADE 8 READING



NATIONAL, GRADE 8 READING

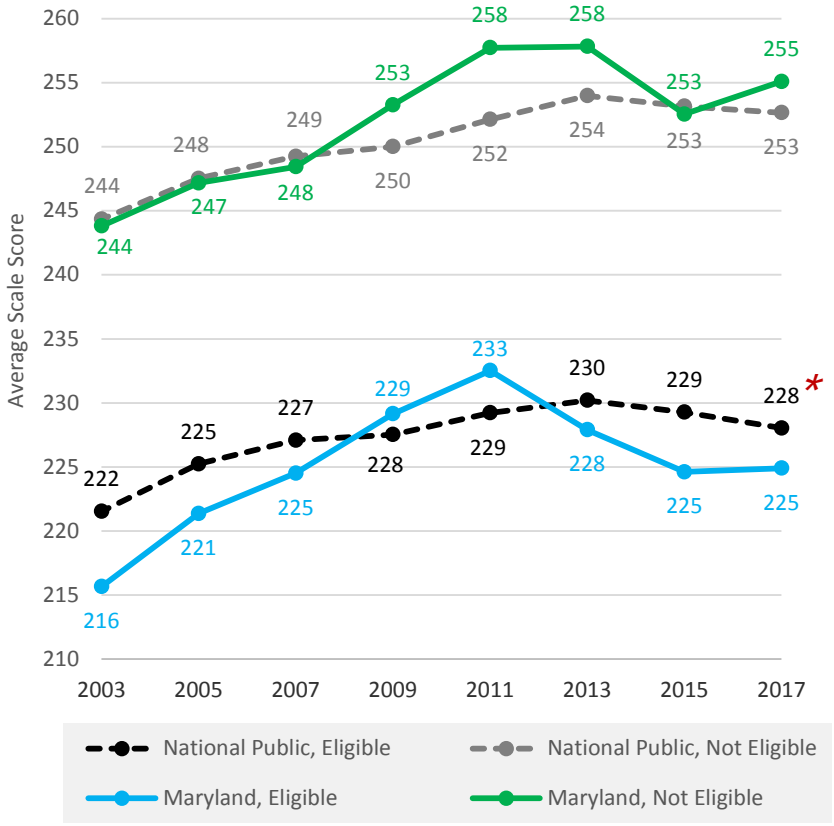


*Significant change from 2015, p<.05

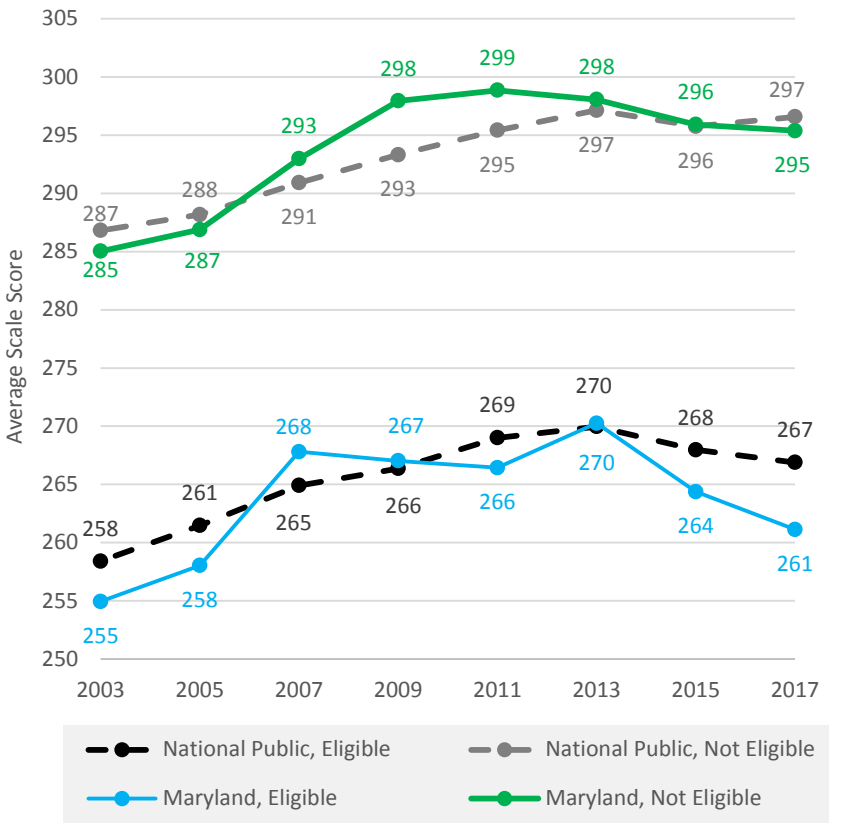
National School Lunch Program eligible students:

Between 2015 and 2017 there were no significant changes in the average score of Maryland students eligible for the program, and no significant change in the gap between eligible and not-eligible Maryland students, in any subject/grade.

GRADE 4 MATH



GRADE 8 MATH



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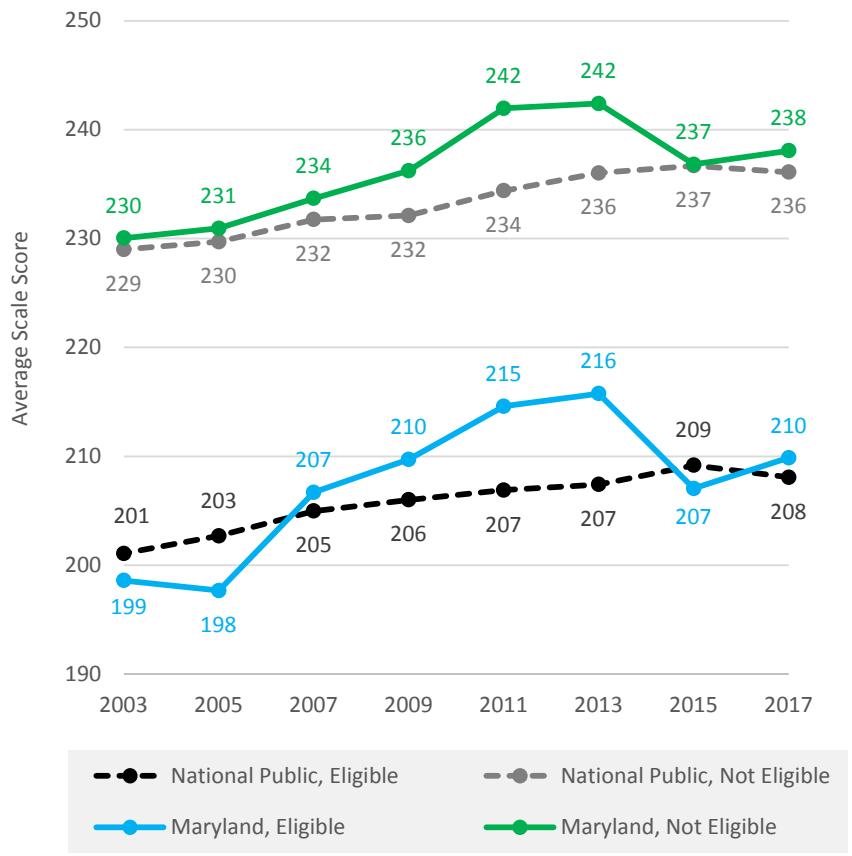
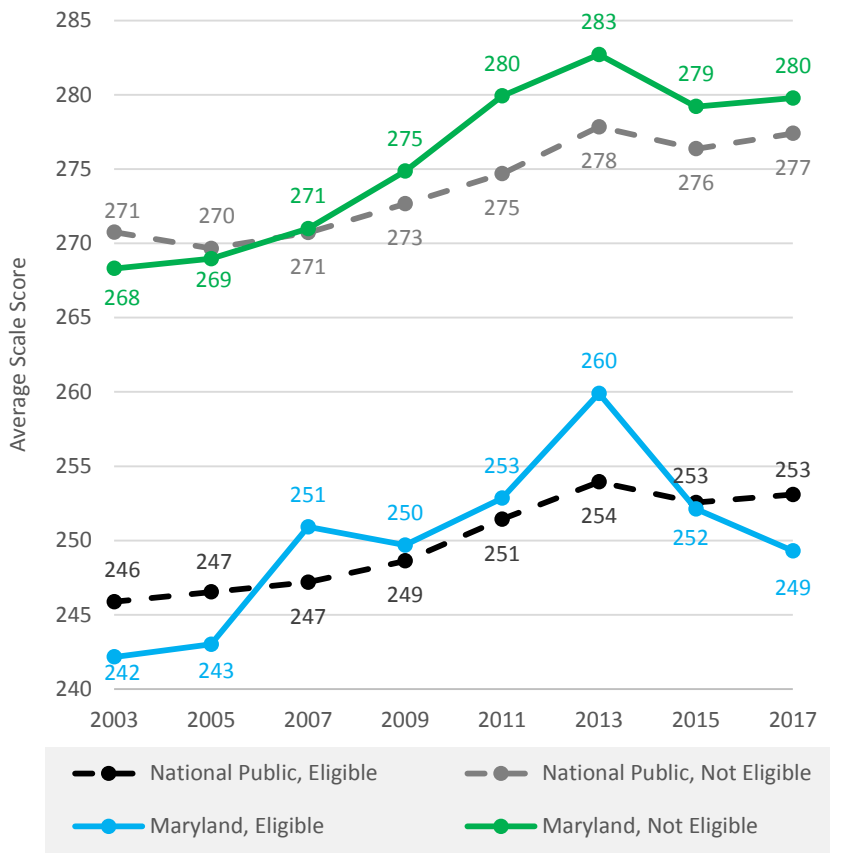
GRADE 4 READING



GRADE 8 READING

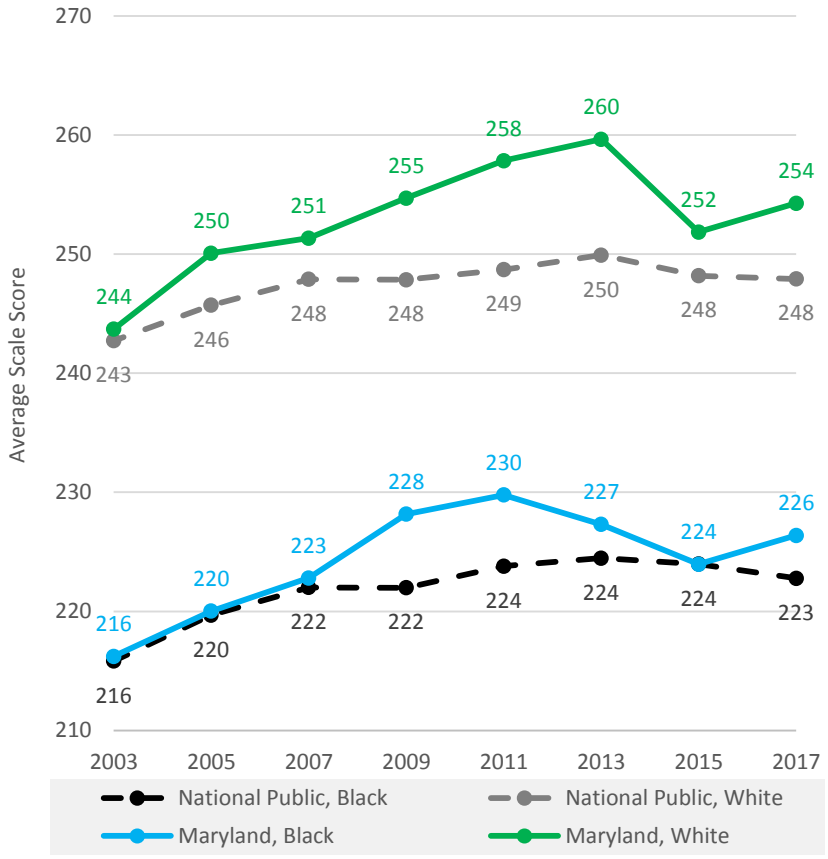


*Significant change from 2015, p<.05

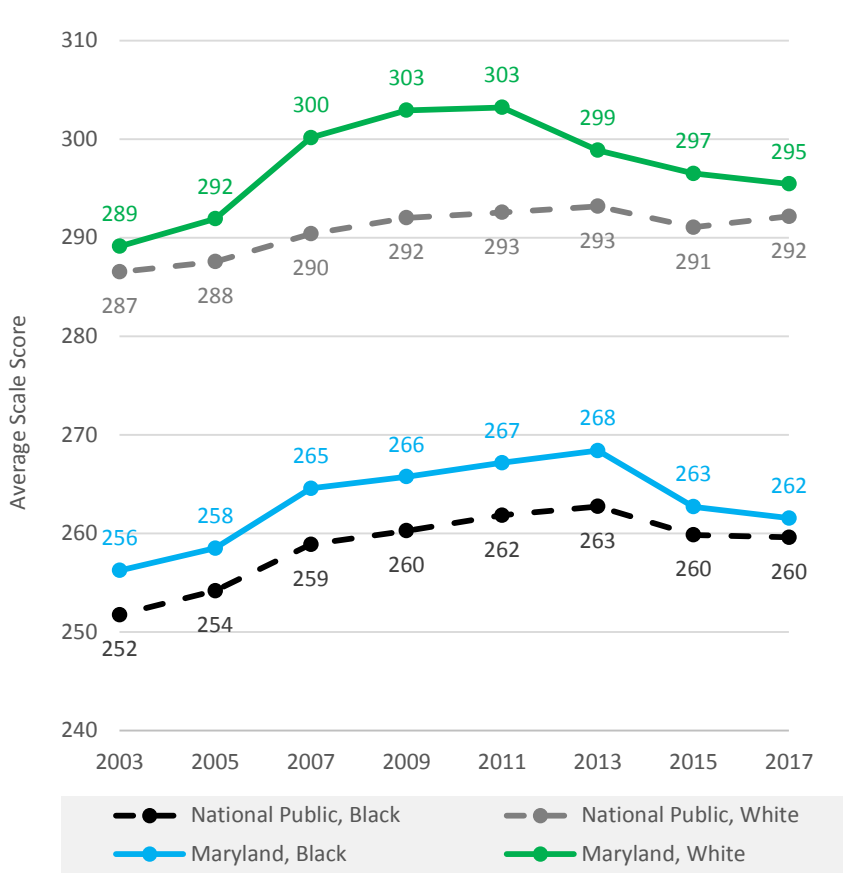
Black and White students:

There were no significant changes in the average MATH scale score of either Maryland Black or White students, and no significant change in the gap between Maryland Black and White students, in either grade.

GRADE 4 MATH



GRADE 8 MATH



*Significant change from 2015, p<.05

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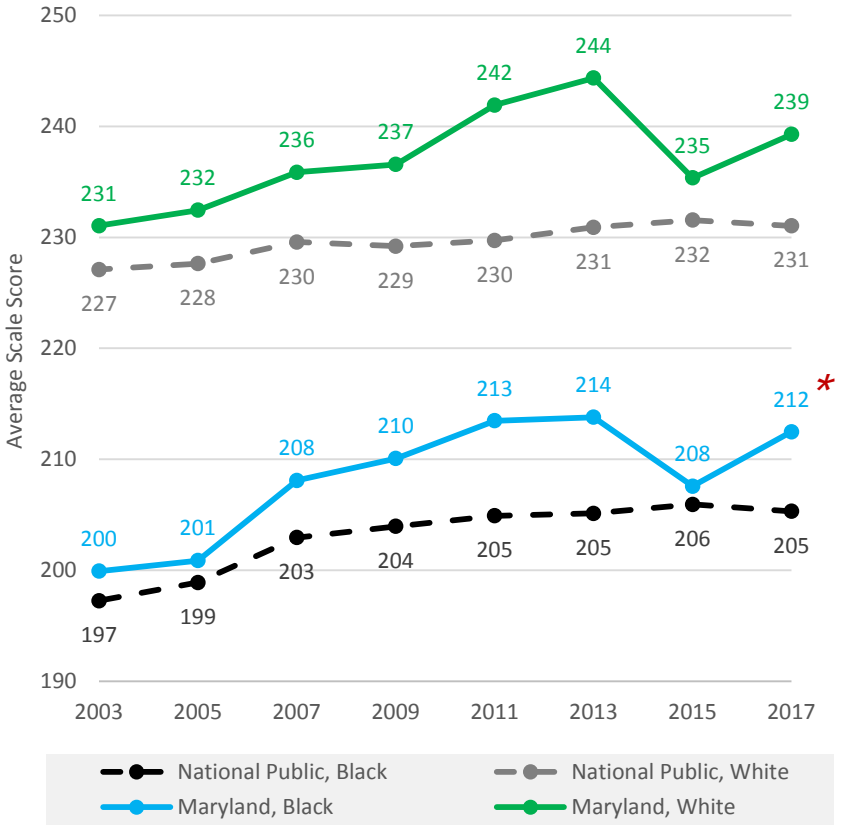
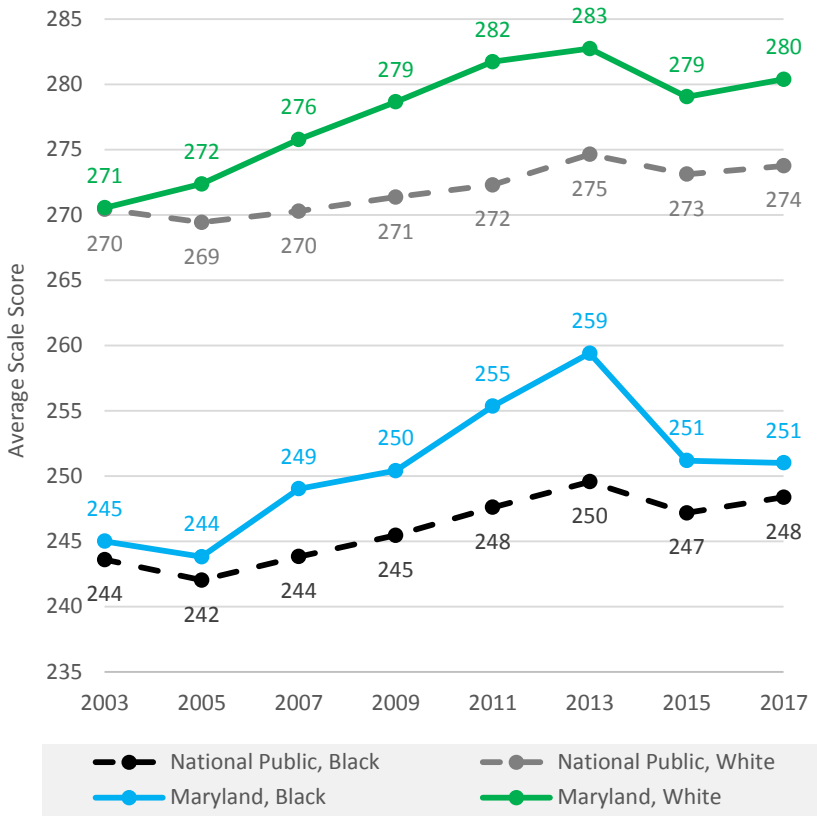
Black and White students:

On the GRADE 4 READING test the average scale score of Black Maryland students was significantly higher in 2017 compared to 2015, but the gap between Black and White students did not significantly change. There were no significant changes in grade 8.

GRADE 4 READING



GRADE 8 READING

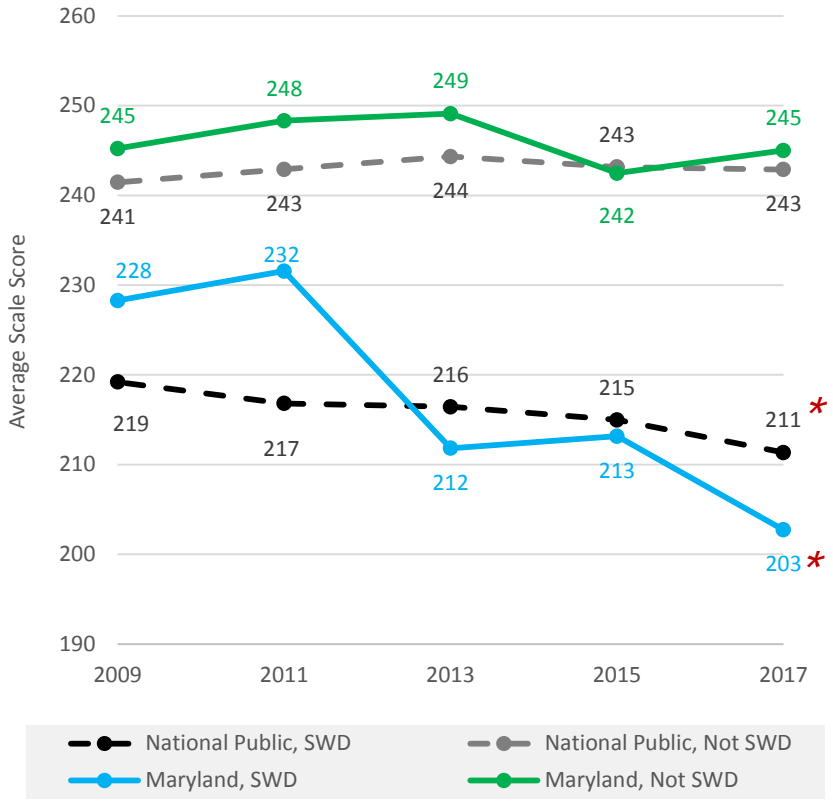


*Significant change from 2015, p<.05

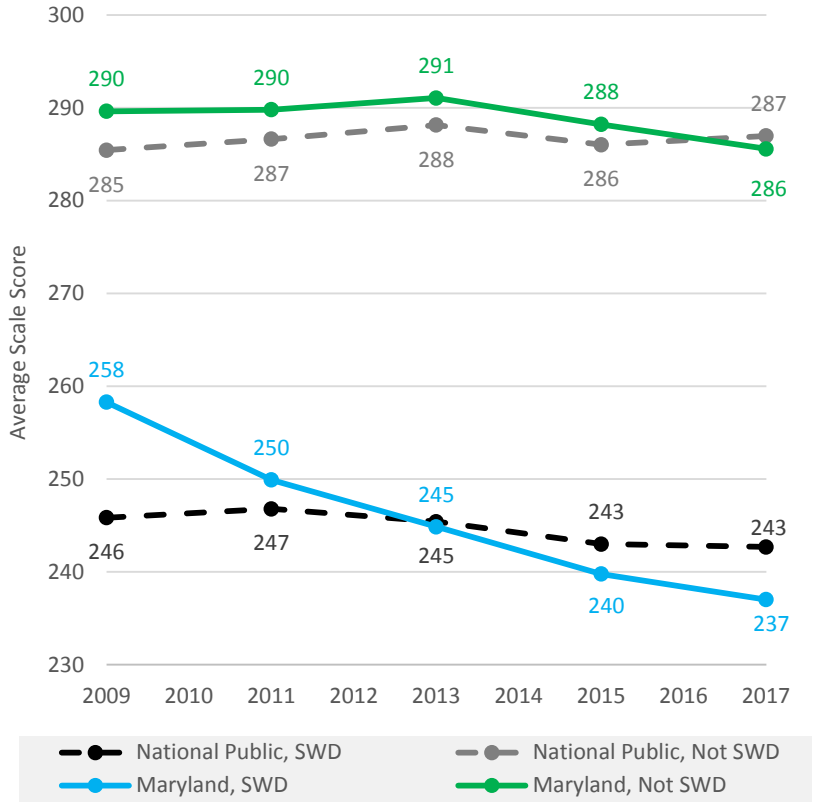
Students with disabilities:

On the GRADE 4 MATH test the average score of Maryland SWD students was significantly lower in 2017 compared to 2015, and the gap between SWD and non-SWD was significantly wider. This was seen nationally as well. There were no significant changes in the average score or gaps between Maryland SWD and non-SWD in the other subjects/grades.

GRADE 4 MATH



GRADE 8 MATH



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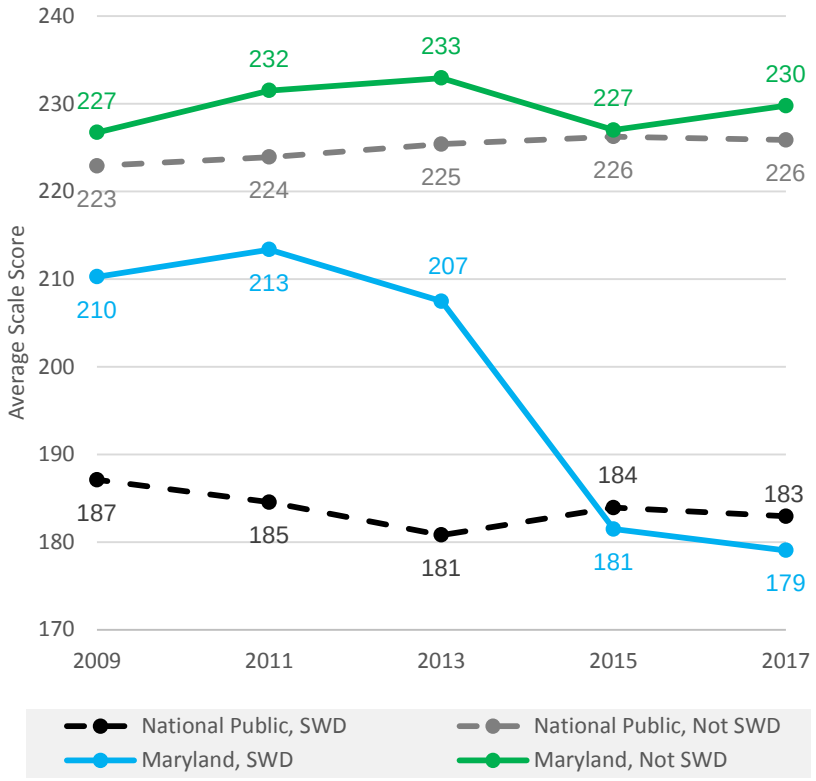
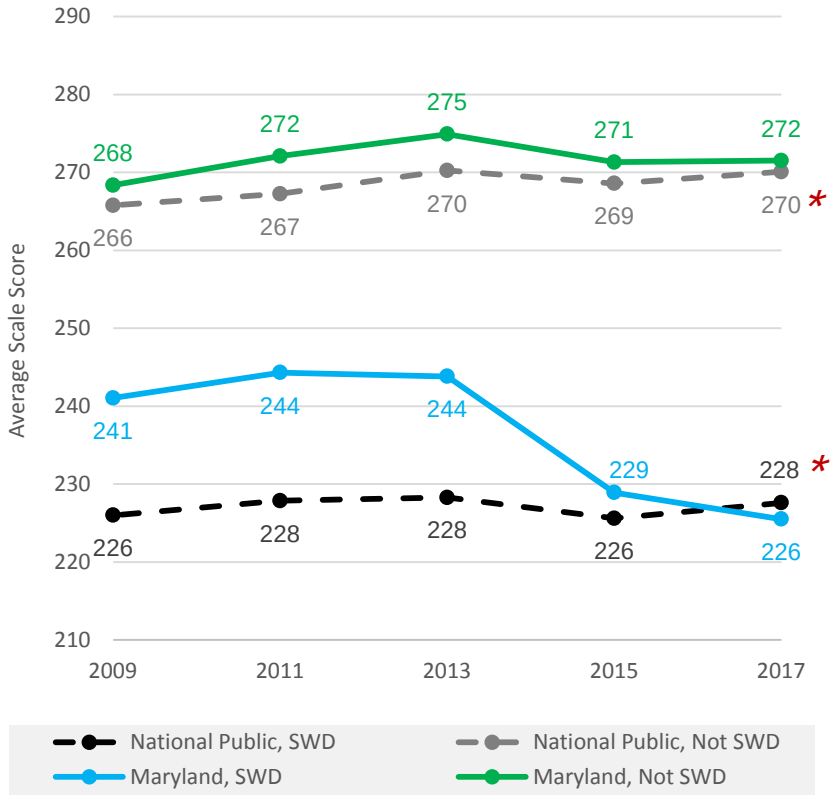


GRADE 8 READING



*Significant change from 2015, p<.05

Summary of Baltimore City NAEP TUDA 2017 Results

- Baltimore City met inclusion goals in all subjects and grades for all students, students with disabilities, and English language learners.
- The math and reading average scale scores did not significantly change from 2015 in either grade in Baltimore City.
- In all subjects/grades, most TUDA districts had higher average scale scores than Baltimore City.
- In all subjects/grades, the average scale score for Baltimore City was lower than the "national public" and "large city" average scale scores.
- There were no significant changes from 2015 to the average scale scores of student groups in Baltimore City, and no significant changes in the gap between student groups.

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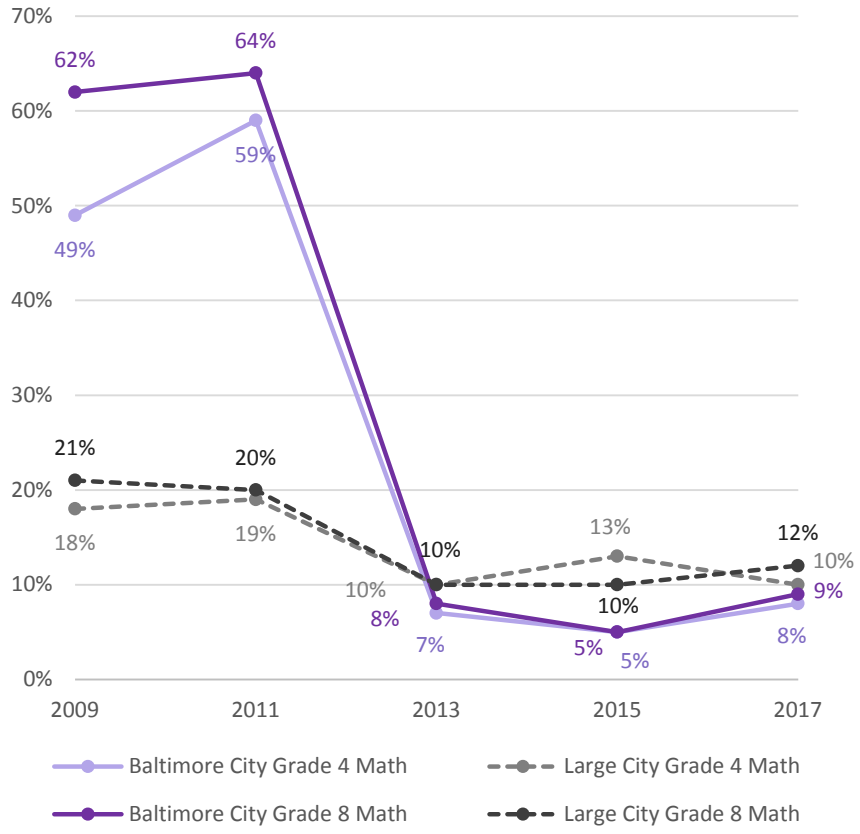
Baltimore City met NAEP inclusion goals in all categories, grades, and subjects.

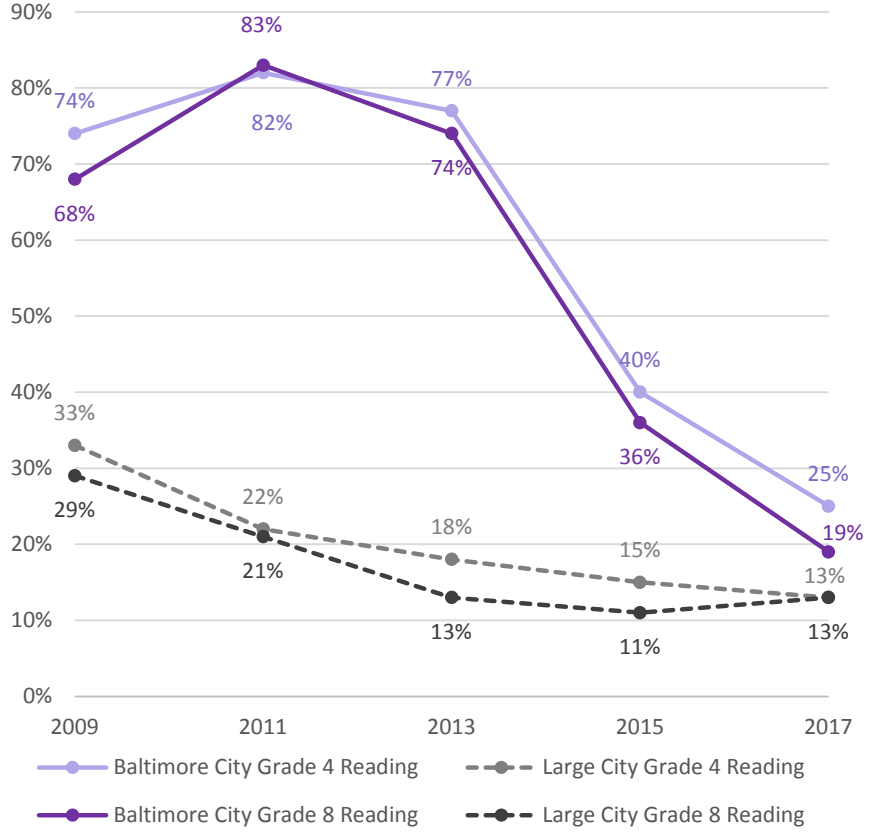
Specifically, Baltimore City tested at least 85 percent of students in the testing sample who were identified as students with disabilities.

(Students may be excluded because their IEP requires accommodations not allowed by NAEP.)

NAEP TUDA Grade 4 and 8 Students with Disabilities Mathematics Exclusion Rates

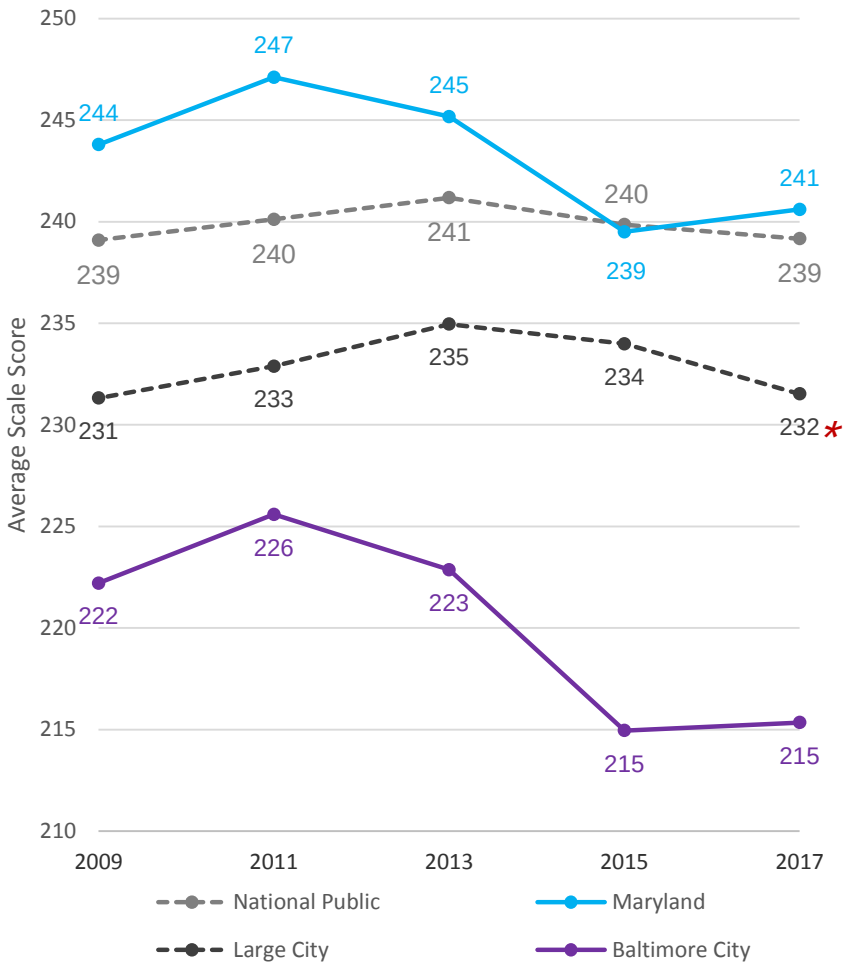


NAEP TUDA Grade 4 and 8 Students with Disabilities Reading Exclusion Rates

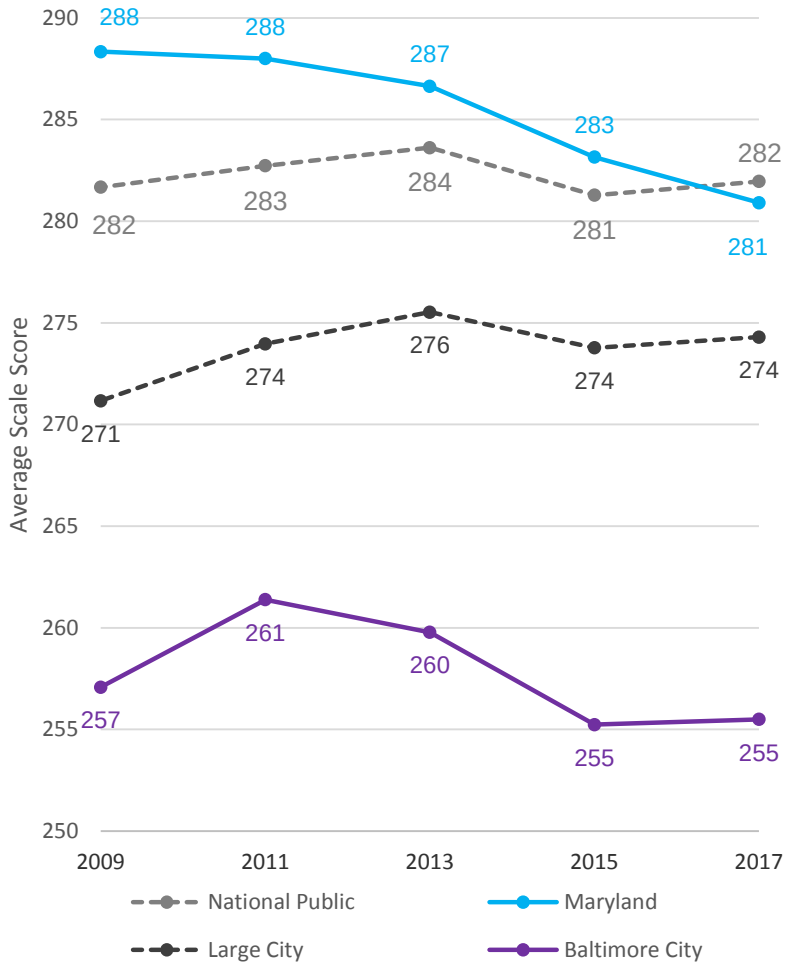


The MATH average scale score of Baltimore City students did not significantly change in either grade between 2015 and 2017, while the national "Large City" average declined in grade 4.

GRADE 4 MATH



GRADE 8 MATH

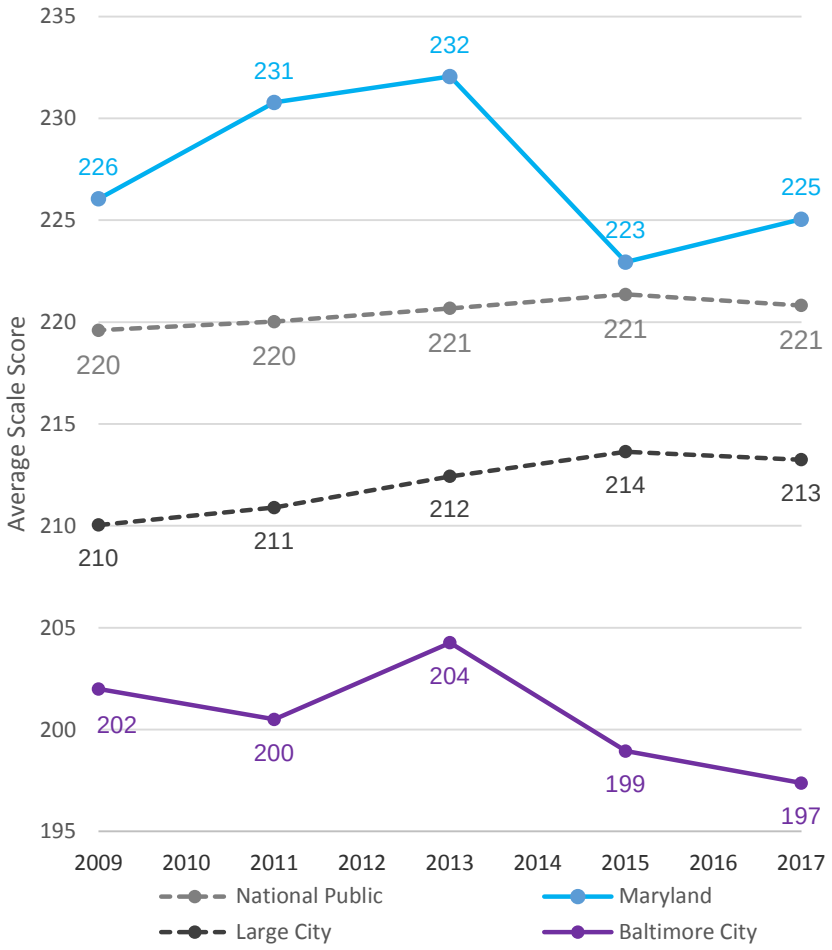


*Significant change from 2015, p<.05

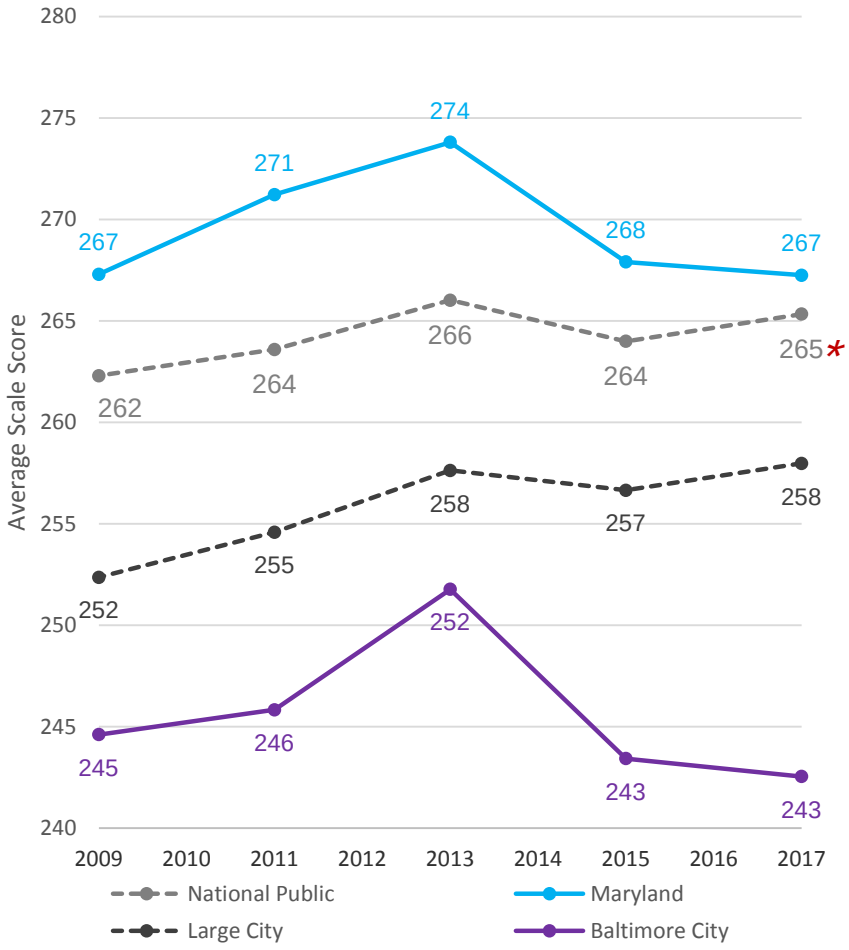
MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

The READING average scale score of Baltimore City students did not significantly change in either grade between 2015 and 2017. There were also no changes to the national "Large City" average scale score.

GRADE 4 READING



GRADE 8 READING



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MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

GRADE 4 | MATHEMATICS | 2017

AVERAGE SCALE SCORES

POINTS

2017 Baltimore City average score (0-500)	248–221	216–214	200	
215	22 jurisdictions ↑ performed significantly higher	3 jurisdictions ◆ not significantly different	1 jurisdiction ↓ performed significantly lower	0 jurisdictions ⊘ no assessment / data not available

Mathematics, grade 4
Difference in average scale scores between all jurisdictions and , for All students [TOTAL] , 2017

Graphic adapted from NAEP website https://bit.ly/2HSSHFQ

GRADE 8 | MATHEMATICS | 2017

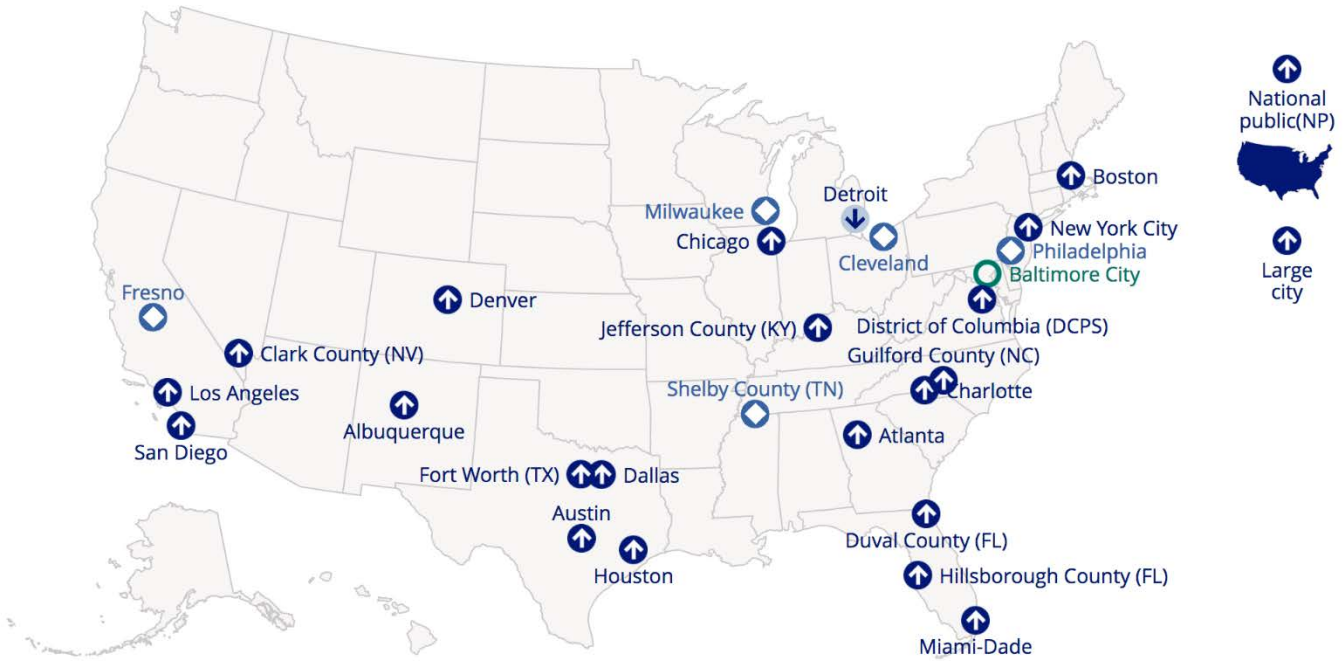
AVERAGE SCALE SCORES

2017 Baltimore City average score (0-500)

255

POINTS	287–262	260–254	246	
	20 jurisdictions ↑ performed significantly higher	5 jurisdictions ◆ not significantly different	1 jurisdiction ↓ performed significantly lower	0 jurisdictions ⊘ no assessment / data not available

Mathematics, grade 8
Difference in average scale scores between all jurisdictions and , for All students [TOTAL] , 2017



Graphic adapted from NAEP website https://bit.ly/2HSSHFQ

MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

GRADE 4 | READING | 2017

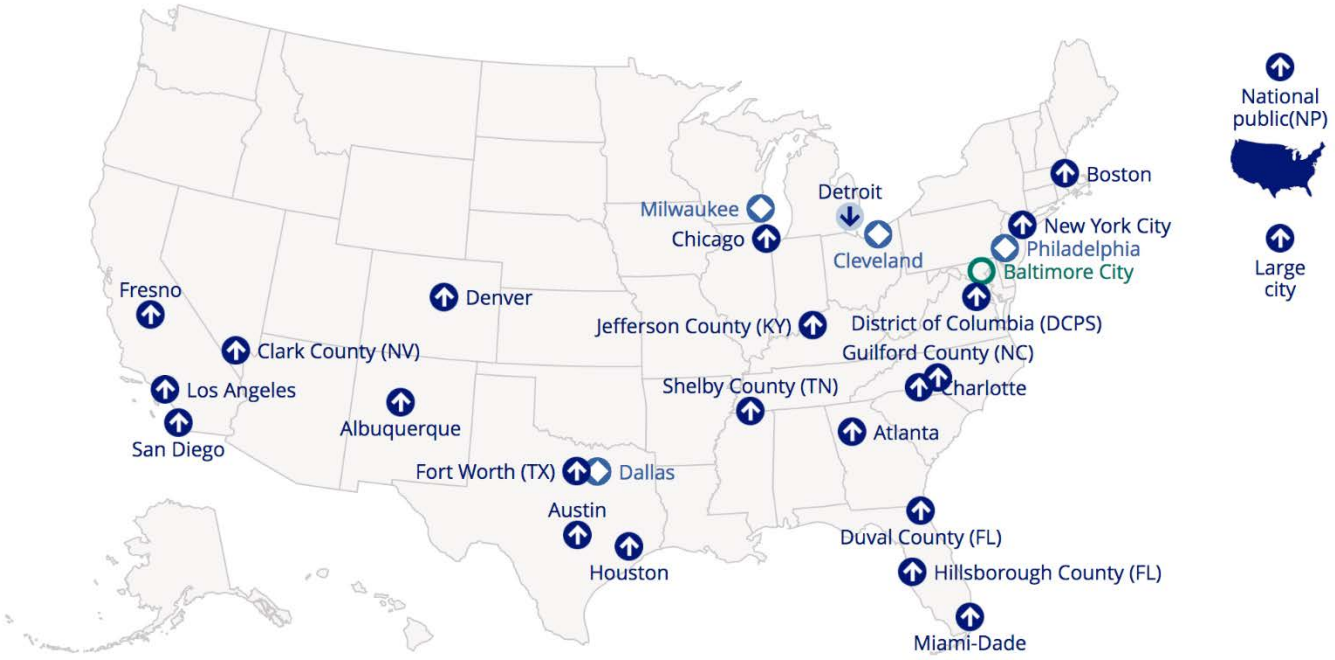
AVERAGE SCALE SCORES

2017 Baltimore City average score (0-500)

197

POINTS	229–203	201–195	182	
	21 jurisdictions ↑ performed significantly higher	4 jurisdictions ◆ not significantly different	1 jurisdiction ↓ performed significantly lower	0 jurisdictions ⊘ no assessment / data not available

Reading, grade 4
Difference in average scale scores between all jurisdictions and , for All students [TOTAL] , 2017



Graphic adapted from NAEP website https://bit.ly/2HSSHFQ

MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

GRADE 8 | READING | 2017

AVERAGE SCALE SCORES

POINTS

2017 Baltimore City average score (0-500)	265–248	246–243	237–235	
243	20 jurisdictions ↑ performed significantly higher	4 jurisdictions ◆ not significantly different	2 jurisdictions ↓ performed significantly lower	0 jurisdictions ⊘ no assessment / data not available

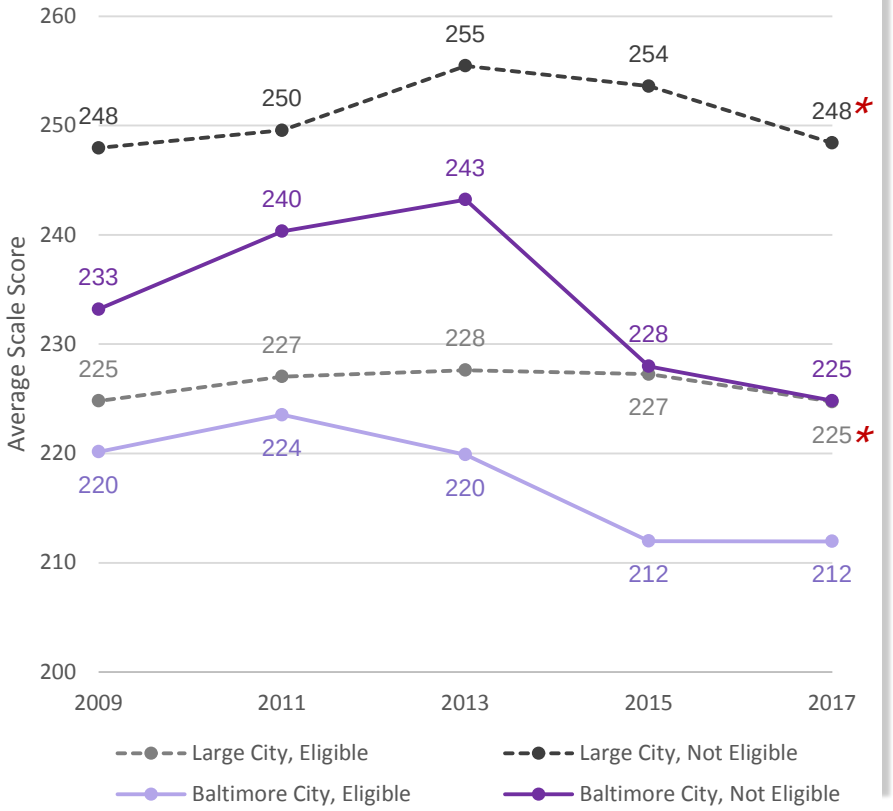
Reading, grade 8
Difference in average scale scores between all jurisdictions and , for All students [TOTAL] , 2017

Graphic adapted from NAEP website https://bit.ly/2HSSHFQ

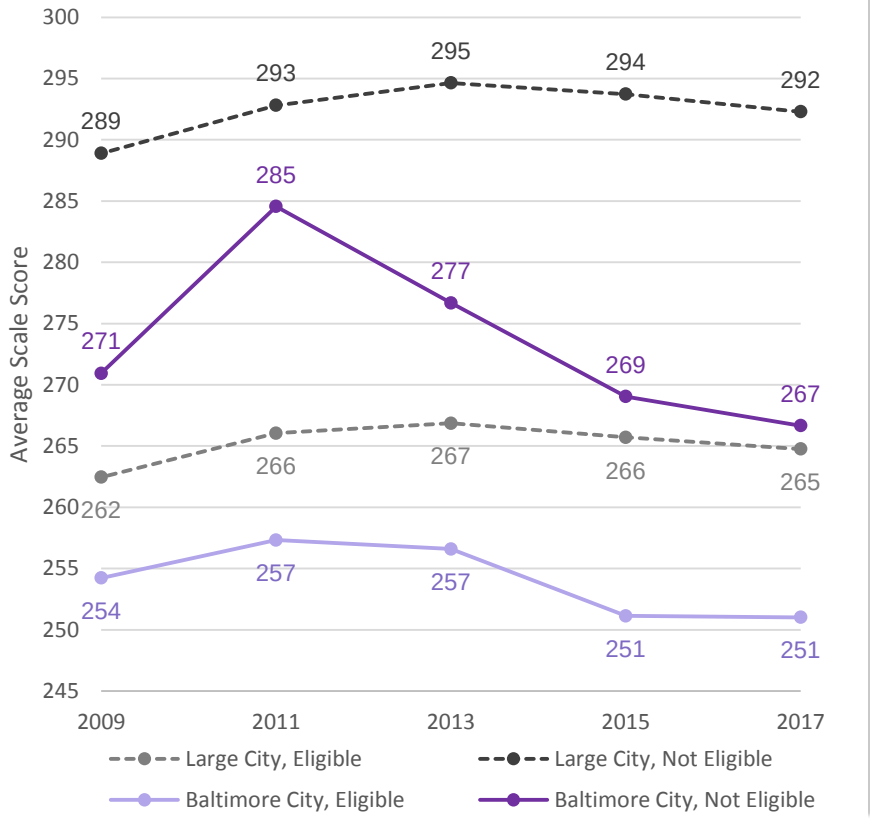
National School Lunch Program eligible students:

Between 2015 and 2017 there were no significant changes in the average MATH scale score of Baltimore City students eligible for the program, and no significant change in the gap between eligible and not-eligible Baltimore City students, in either grade. In MATH grade 4, the "Large City" average scale score for eligible and not-eligible decreased.

GRADE 4 MATH



GRADE 8 MATH



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National School Lunch Program eligible students:

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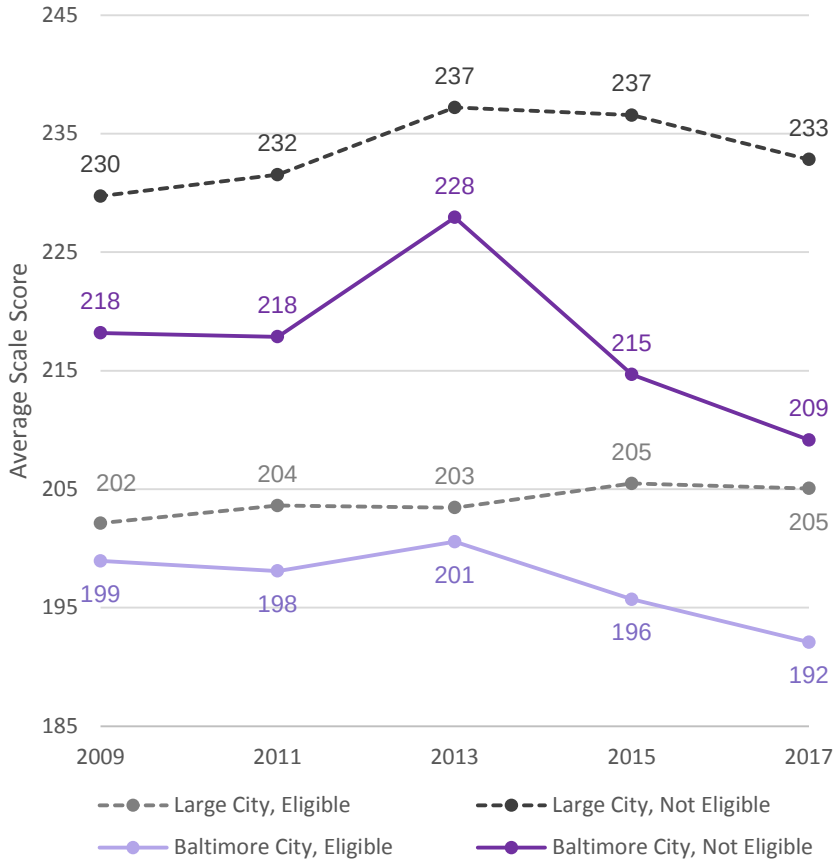
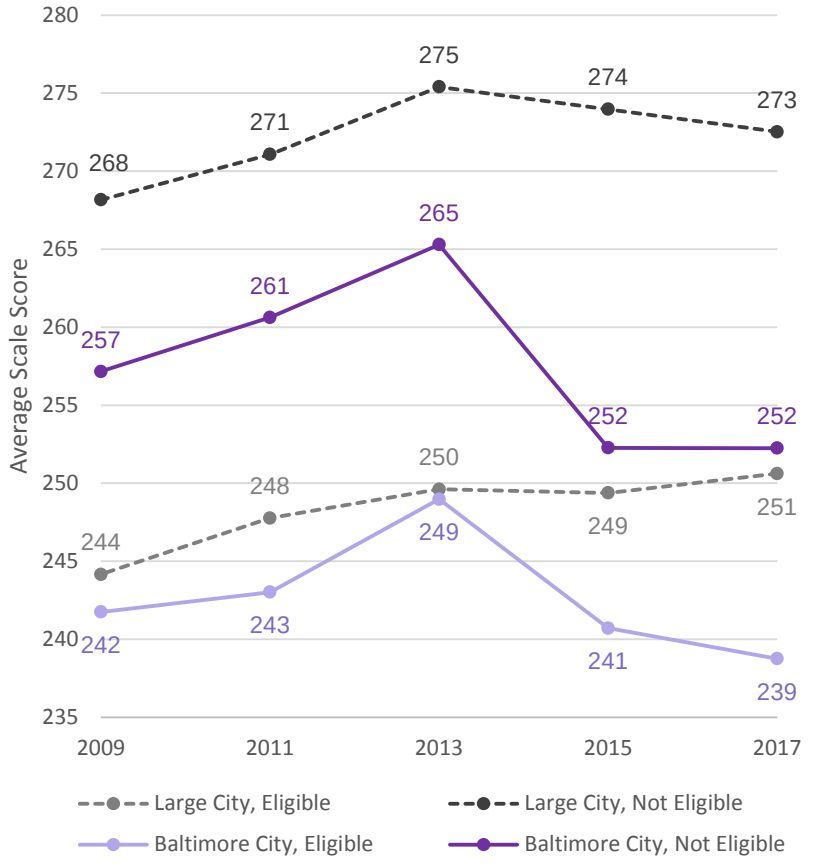
GRADE 4 READING



GRADE 8 READING



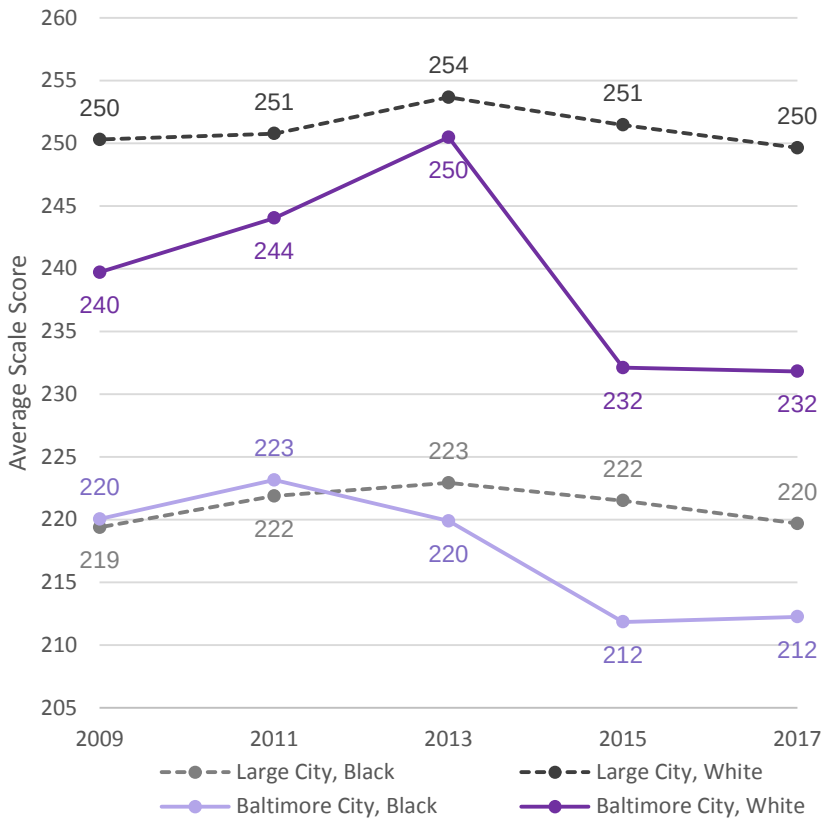
*Significant change from 2015, p<.05

MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

Black and White students:

Between 2015 and 2017, there were no significant changes in the average MATH scale score of either Baltimore City Black or White students, and no significant change in the gap between Baltimore City Black and White students, in either grade.

GRADE 4 MATH



GRADE 8 MATH

NOTE: NAEP reporting standards not met in some years

*Significant change from 2015, p<.05

MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

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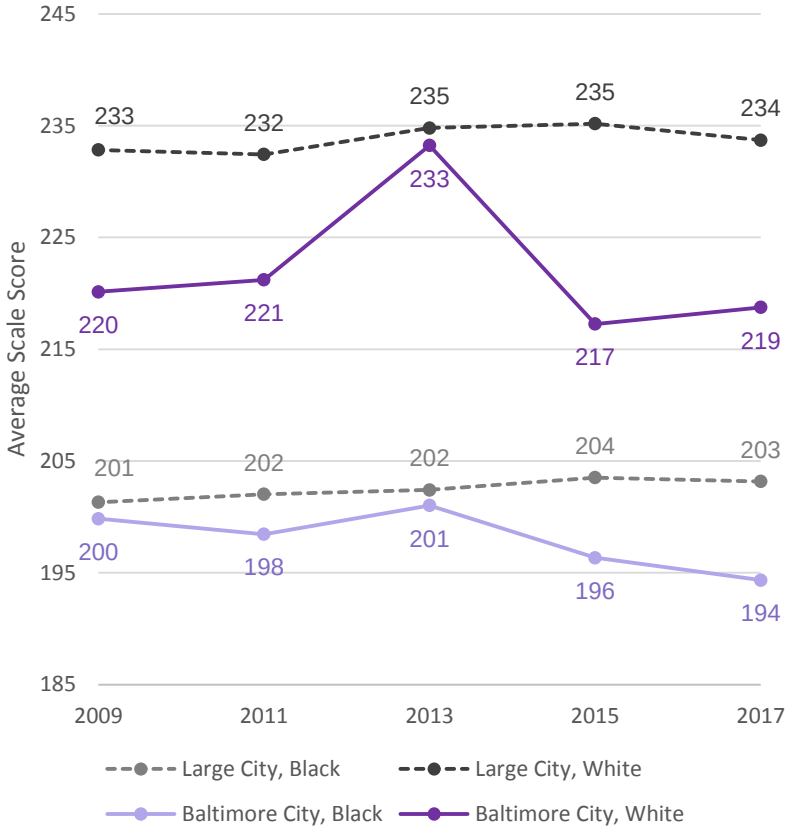
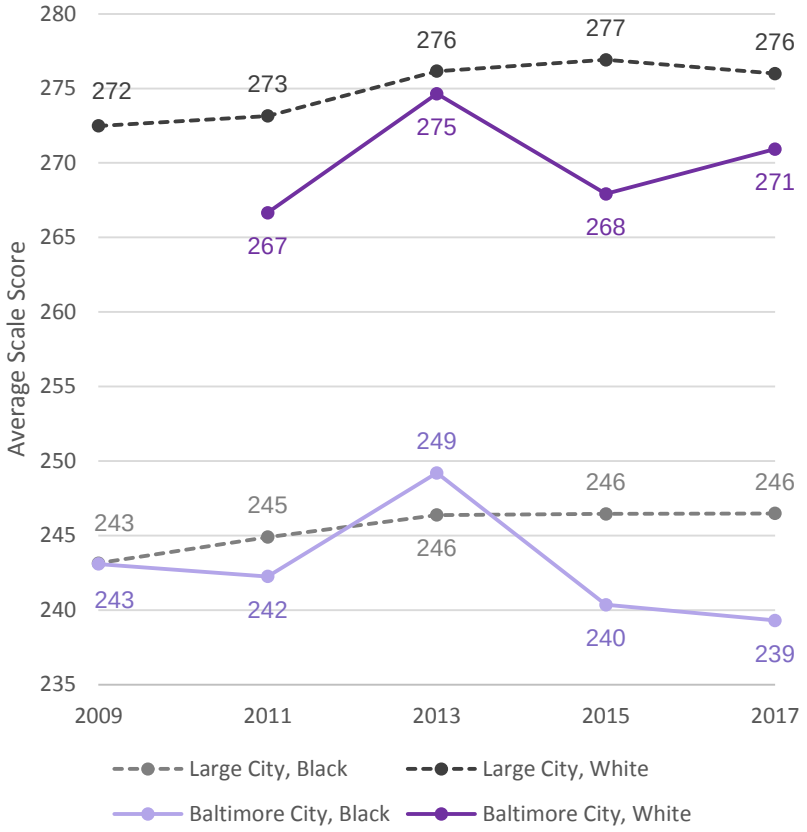


GRADE 8 READING



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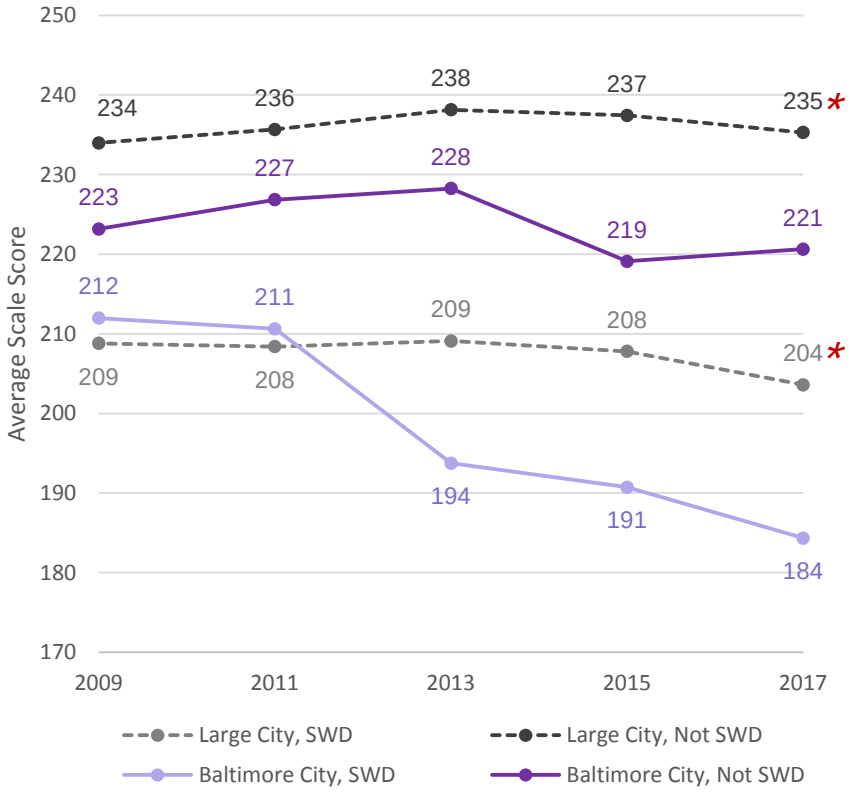
Students with disabilities:

Between 2015 and 2017 there were no significant changes in the average MATH scale score of Baltimore City SWD students, and no significant change in the gap between SWD and not-SWD Baltimore City students, in either grade. In MATH grade 4, the "Large City" average scale score for SWD and not-SWD decreased.

GRADE 4 MATH



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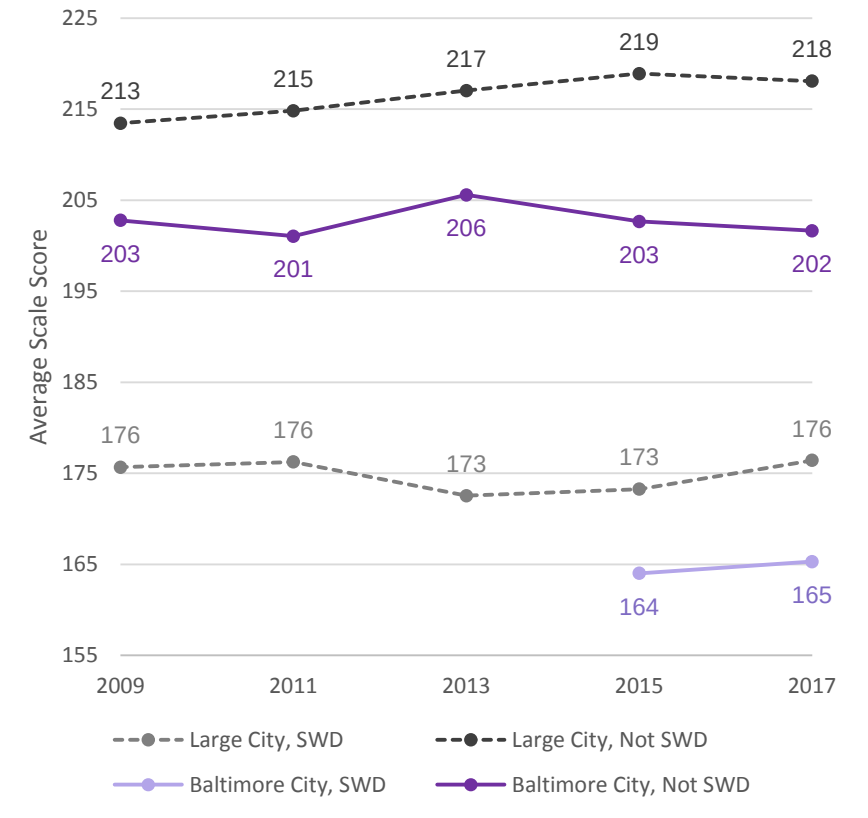

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