Commission on Innovation and Excellence in Education

William E. Kirwan, Chair

Agenda
October 31, 2016
1:00-4:30 p.m.
120 House Office Building, Annapolis, Maryland

I. Chair's Opening Remarks

II. Overview of Every Student Succeeds Act (ESSA)

- Lee Posey, National Conference of State Legislatures

III. Overview of Accountability and Student Performance in Maryland

- Dr. Karen B. Salmon, State Superintendent of Schools, Maryland State Department of Education

IV. *No Time to Lose: How to Build a World-Class Education System State by State*

- Lee Posey, National Conference of State Legislatures

V. Lessons from Top Performing Education Systems

- Marc Tucker, National Center on Education and the Economy

VI. Implementing System Reform

- David Driscoll, Former Commissioner of Education, Massachusetts
- Marc Tucker, National Center on Education and the Economy

VII. Chair's Closing Remarks and Adjournment

Next Meeting: Thursday, December 8, 2016 – 10:00 a.m. to 4:00 p.m. – 120 House Office Building, 6 Bladen Street, Annapolis, Maryland

Presentation to the Maryland Commission on Innovation and Excellence in Education

October 31, 2016

Lee Posey, Federal Affairs Counsel
National Conference of State Legislatures

The Every Student Succeeds Act (ESSA)

Major Provisions

Under ESSA, states are still required to:

- Have challenging academic standards
- Have statewide assessments with 95% participation
- Have teacher equity plans
- Set goals for student performance

NCSL-NGA plan: what states asked for and got in ESSA

- State determined accountability systems
- Continued disaggregation of student data
- Incorporation of state-designed turnaround strategies for low-performing schools
- Promotion of the alignment of K-12 standards with higher education and career preparation goals
- Possibilities for innovation in assessment design

NCSL-NGA plan: what states asked for and got in ESSA (continued)

- Elimination of the "highly qualified teacher" and "adequate yearly progress" metrics
- Prohibition on federal approval or incentivization of state standards or plans
- Prohibition on use of additional/new federal requirements as a condition of waiver approval

Even more data!

- Disaggregated data on all of the indicators
- Includes not just the subgroups for which you have goals, but
  - Migrant status
  - Homeless status
  - Status as a child in foster care
  - Student with a parent who is active duty Armed Forces
- Postsecondary enrollment "where available" (i.e. if state is routinely reporting or can routinely obtain)
- Information on per pupil expenditures

Three main policy buckets

- Accountability (state plan and state indicator system)
- Assessments
- Turning Around Low Performing Schools

Assessment flexibility under ESSA

- States can use a single summative assessment or use assessments given throughout the school year and calculate a summative score.
- Assessments should involve multiple measures, including measures of higher-order thinking skills that may be delivered in the form of portfolios, projects or extended performance tasks.
- States can take advantage of options such as allowing the use of a nationally recognized high school academic assessments and allowing 8th grade students in advanced math courses to substitute an end of course exam for the statewide test.

Assessment flexibility under ESSA (continued)

- Set aside of state assessment funding can be used for an audit of all assessments
- States can apply for the Innovative Assessment pilot to allow LEAs to experiment with different kind of tests.

State accountability systems

- Required indicators
  - Academic Achievement—measured by proficiency on annual assessments; for high schools states may also include a student growth measure
  - Academic Progress—for elementary and secondary schools that aren't high schools
  - Progress in Achieving English Language Proficiency
  - Graduation Rate—for high schools
  - School Quality or Student Success
- Academic measures must weigh more heavily than other indicators; test participation must be incorporated into the accountability system

Turnaround strategies

NCLB

- School Improvement Grants and Race to the Top included a federal cascade of interventions

ESSA

- States must identify schools as low-performing if they are in the bottom 5%; if they are a high school failing to graduate 1/3 or more of students, or have a consistently underperforming subgroup
- Identification happens every three years.
- LEAs use strategies (state-approved; evidence based) to improve performance. Every four years, if there has not been improvement, the state is expected to intervene.

The Every Student Succeeds Act:

Timelines and Next Steps

Implementation timeline

- ESEA flexibility waivers ended August 1
- Federal regulatory process ongoing
- Stakeholder engagement ongoing
- State plan submission windows proposed: March 6 & July 5, 2017
- FULL IMPLEMENTATION IN THE 2017-2018 SCHOOL YEAR

Federal regulatory action

- Final regulations released on teacher preparation
- Proposed regulations on assessments, innovative assessment pilot at OMB for final review
- Regulations on supplement, not supplant out for public comment
- Guidance released on provisions regarding: foster children; homeless children and youth; Title III (English learners); Title II (supporting teachers); well-rounded education; Student Success and Academic Enrichment grants; tribal consultation

Who is a stakeholder?

- ✓ Governor
- ✓ state legislators
- ✓ state board members
- ✓ LEAs, including rural LEAs
- ✓ representatives of Indian tribes
- ✓ teachers, principals, other school leaders and personnel
- ✓ charter school leaders
- ✓ parents and families
- ✓ community based organizations
- ✓ civil rights organizations
- ✓ institutions of higher education
- ✓ employers
- ✓ the public

Stakeholder engagement: What does it look like?

- Statute: must be meaningful and timely
- Must happen before plan is submitted
- Many states have a mix of public forums, working groups and committees, information online
- Some state draft plans are already being posted for review, or should be published soon

Consolidated state plan can include:

- Title 1 Part A
- Title 1 Part C (migratory children)
- Title 1 Part D Prevention and Intervention for children and youth who are neglected, delinquent or at-risk
- Title II Supporting Effective Instruction
- Title III Language Instruction for English Learners and Immigrant Students
- Title IV, Part A Student Support and Academic Enrichment grants
- Title IV Part B 21st Century Community Learning Center
- Title V, Subpart 2 Rural and Low-Income School Programs
- May also include State Assessments grants and McKinney-Vento Homeless Assistance Grants

Think broadly… ESSA reauthorizes and interacts with many other programs

- ESSA reauthorizes programs for
  - ❑ English language learners
  - ❑ Migrant children
  - ❑ Homeless Children and Youth (McKinney-Vento)
  - ❑ Indian, Native Hawaiian, and Alaska Native students
  - ❑ Teachers and school leaders
  - ❑ Preschool
  - ❑ Funds impact aid, charter schools, magnet schools, 21st Century Community Learning Centers, and literacy programs.
- Interacts with the Individuals with Disabilities Act (IDEA) and Perkins, Workforce Innovation and Opportunity Act, Education Sciences Reform Act

A cherry blossom moment…

For more information:

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(202) 624-8196

NCSL ESSA page: http://www.ncsl.org/ESSA

NCSL College and Career Readiness Legislative Tracking:
http://www.ccrslegislation.info

Commission on Innovation and Excellence in Education

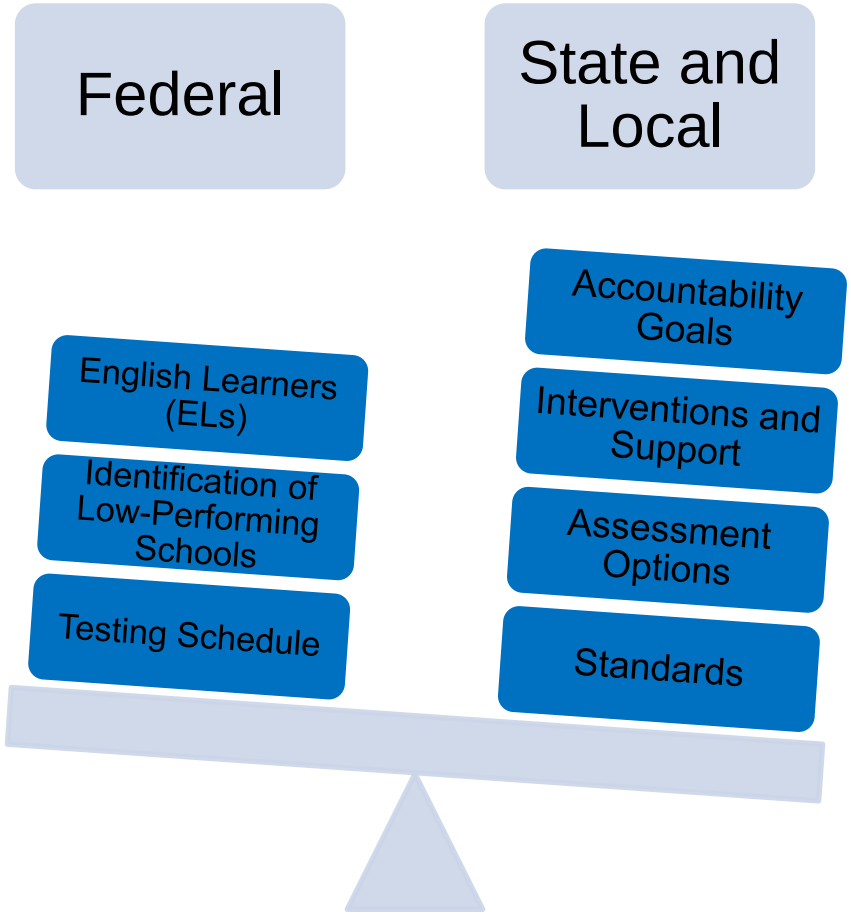
Overview of Accountability and Student Performance in Maryland

October 31, 2016

Every Student Succeeds Act (ESSA)

- Signed into law on December 10, 2015
- Designed to create a long-term, stable federal policy Takes effect in the 2017-2018 school year
- Takes effect in the 2017- 2018 school year

Substantive Changes
Federal v. State and Local Control in ESSA



Key Elements of ESSA

- Accountability Plans, Goals, Systems
- Low Performing Schools Identification and Supports
- Assessment
- “Challenging” Academic Standards
- English-Language Learners - proficiency
- Students in Special Education

GOALS

ESSA requires states to…

- set “ambitious” long-term goals, and measurements of interim progress
- include goals on Academic Achievement, English Learner proficiency, and graduation
- determine goals based on proficiency
- determine timeline for long-term and interim goals
- demonstrate goals narrow achievement gaps

MULTIPLE MEASURES

Indicators Elementary/Middle Schools	Indicators High Schools
Indicator Achievement	**Indicator** Achievement
Indicator Progress/Growth	**Indicator** Graduation
Indicator English Learner Proficiency	**Indicator** English Learner Proficiency
Indicator School Quality/Student Success	**Indicator** School Quality/Student Success

Components of the Consolidated State Plan

- Consultation and Coordination
- Challenging Academic Standards and Assessments
- Accountability, Support, and Improvement for Schools
- Supporting Excellent Educators
- Supporting All Students

Guiding the Work

- ESSA External Stakeholder Committee
  - Includes representatives from the Governor's Office, State Board of Education, Maryland Association of Boards of Education, LEAs - teachers, principals, local Superintendents, teacher associations, other school leaders, charter school leaders, parents, community-based organizations, civil rights organizations, institutions of higher education, employers, equity groups, and others.
- ESSA Internal Committee (MSDE)
- Seven ESSA Sub-Committees with stakeholder representation

Outreach and Timeline

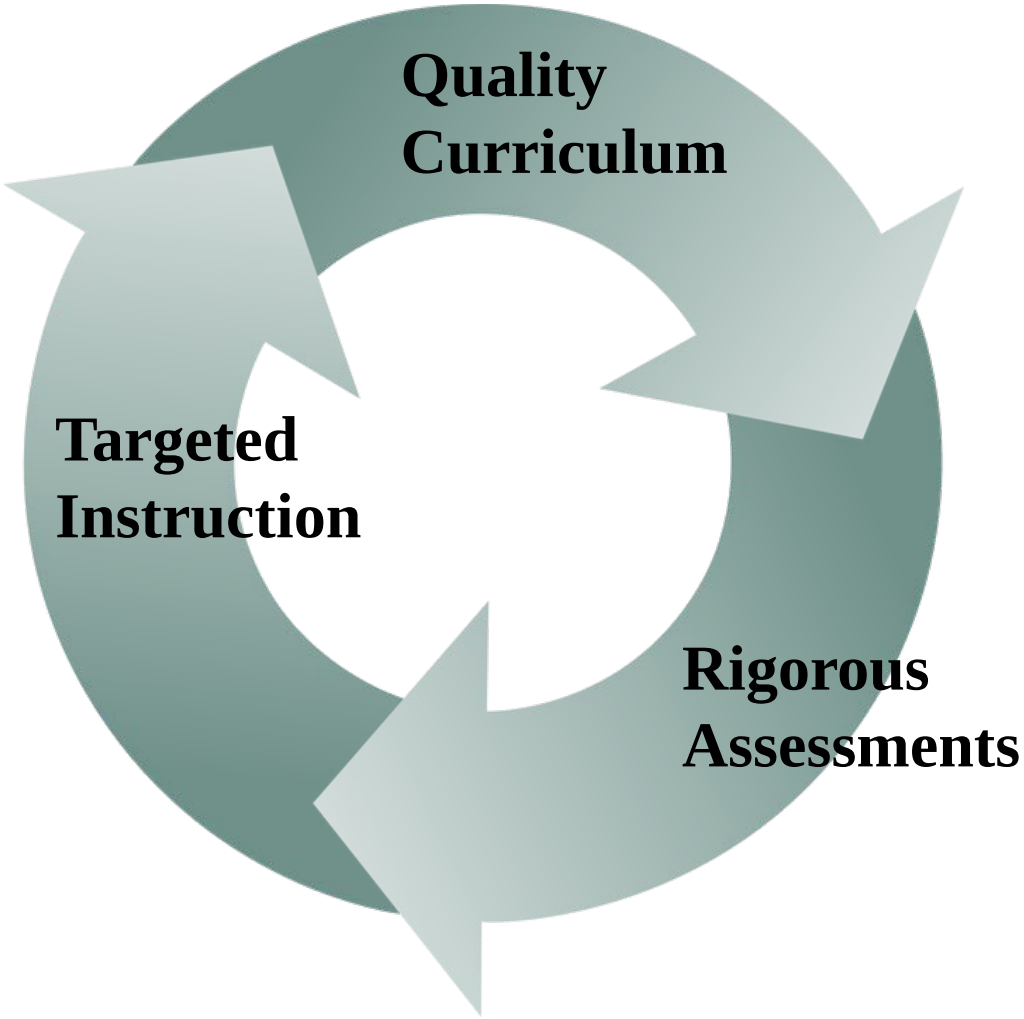
- More than 52 meetings/focus groups seeking input since March with more planned including surveys and regional gatherings to seek input
- Discussions with the State Board monthly – focus has been mainly on Accountability System for Maryland
- First Draft planned for December 2016 – will share to gather input
- Planning for additional drafts in March and April 2017
- Submission of Plan – July 2017

Maryland's Assessment Program

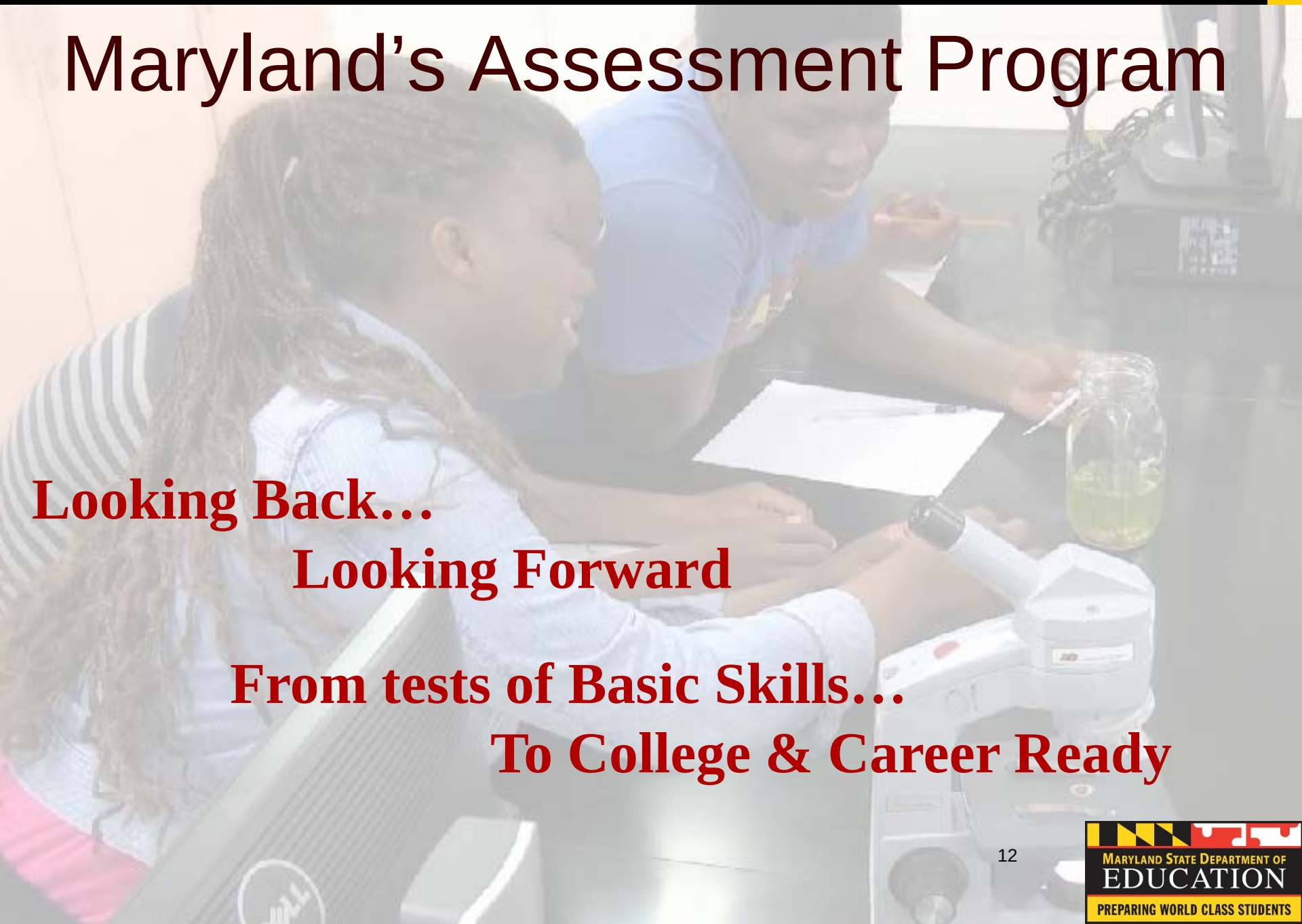
A tradition of high expectations and rigorous standards …

While consistently advancing student achievement

Maryland's Assessment Program



Maryland's Assessment Program



Looking Back…

Looking Forward

From tests of Basic Skills…

To College & Career Ready

MARYLAND STATE DEPARTMENT OF EDUCATION
PREPARING WORLD CLASS STUDENTS

Maryland Functional Test 1988

From a memorandum . . .

To Ellen,

I am very, very pleased with your work. Since you have been working here, our business has almost doubled, and you have handled the extra work load wonderfully.

I have only two suggestions to make things simpler for you and the rest of the crew.

1. Make a copy of the name lists before sending them to the Mailing Department. Keep this copy in your notebook for your own records.
2. After Bob sees each mailing, make sure he signs his name on each pink slip. File the slips each morning when you come in.

Again, I want to tell you how very pleased everyone here is with your work. We also enjoy your warm smiles and friendly words.

Barbara

8. What is the best statement of the main idea of this memorandum?

A. Ellen will be getting a promotion very soon.
B. Barbara and the rest of the crew think Ellen is very pleasant.
C. Barbara is pleased with Ellen's work and has two suggestions to make it easier.
D. Ellen needs to learn to be more careful in her work.

Maryland Functional Test 1988

67. Solve for P:

$$P = S - C$$

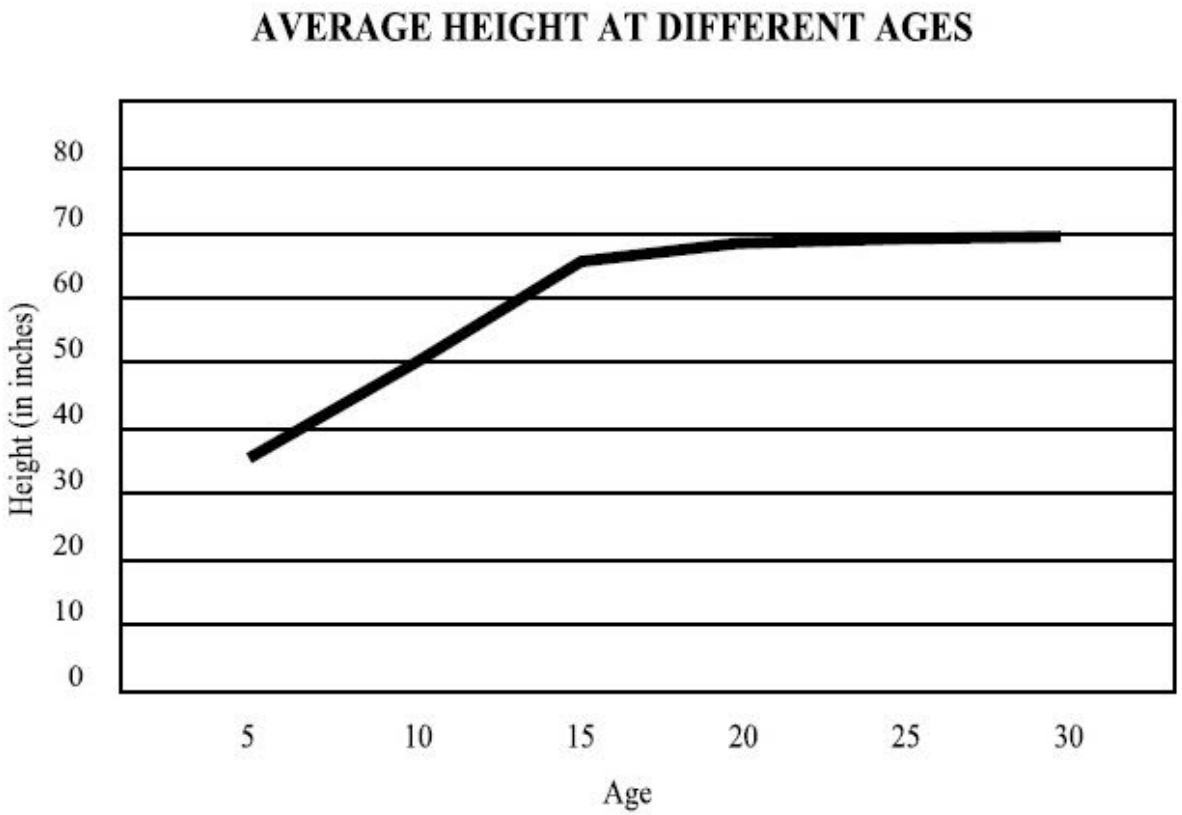
$$S = .75$$
$$C = .31$$

A. .54
B. .75
C. .42
D. .44

68. A pizza that costs $10.00 is cut into 8 slices. About how much does each slice cost?

A. $18.00
B. $ 1.00
C. $10.00
D. $ 2.00

Maryland Functional Test 1988

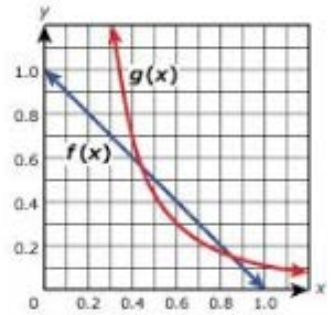


60. Estimate the increase in average height from age 10 to age 20, in inches.

A. 70
B. 18
C. 25
D. 50

PARCC 2015

The functions $f(x) = 1 - x$ and $g(x) = \frac{0.11}{x^3}$ are defined for all values of $x > 0$. The graphs are shown in the coordinate plane.



Part A

Explain how you can use the graph to find the solution(s) of the equation $f(x) = g(x)$. In your answer, provide the approximate value(s) of the solution(s).

[A] [π]

Math symbols
Relations

Part B

Write the value(s) of $f(x)$ when x equals the solution(s) from Part A.

[A] [π]

Math sym
Relations
Geometry
Groups
Trigonom
Statistics
Greek

Part C

Let the function $h(x)$ be defined as $h(x) = f(x) - g(x)$.

What are the coordinates of the point(s) on the graph of $h(x)$ when x equals the solution(s) from Part A? Explain your reasoning.

[A] [π]

Math symbols
Relations
Geometry

PARCC 2015

Today you will read a biography of Abigail Adams, and then you will read two examples of correspondence between Abigail and her husband, John Adams, who served as President of the United States from 1797 to 1801. As you read these texts, you will gather information and answer questions that will help you understand John and Abigail Adams's relationship and opinions. When you are finished reading, you will write an analytical essay.

Now read a letter Abigail Adams wrote to her husband. Then answer the questions.

Letter to John Adams

Abigail Adams

Braintree

March 31, 1776

1 I wish you would ever write me a letter half as long as I write you, and tell me, if you may, where your fleet are gone; what sort of defense Virginia can make against our common enemy; whether it is so situated as to make an able defense. Are not the gentry lords, and the common people vassals? Are they not like the uncivilized vassals Britain represents us to be? I hope their riflemen, who have shown themselves very savage and even blood-thirsty, are not a specimen of the generality of the people. I am willing to allow the colony great merit for having produced a Washington—but they have been shamefully duped by a Dunmore.

2 I have sometimes been ready to think that the passion for liberty

Part A

Which **two** statements **best** summarize Abigail's ideas regarding the occupation of Boston, based on the letter to her husband?

- ☐ A. Disease wiped out many of the residents of Boston during the occupation of their town.
- ☐ B. Many of the homes that were occupied in Boston were left in better condition than expected.
- ☐ C. It is likely that another town in the Colonies will be similarly occupied in the near future.
- ☐ D. Only the president's and solicitor general's homes were left unharmed by those who occupied Boston.
- ☐ E. The people of Boston do not know whether or not they should return to their homes.
- ☐ F. As long as citizens of other towns take steps to avoid what led to the occupation in Boston, they should be safe from a similar fate.

Part B

Choose **two** quotations that **best** support the answers in Part A.

- ☐ A. "I am fearful of the small-pox, or I should have been in before this time." (paragraph 3)
- ☐ B. "I find it has been occupied by one of the doctors of a regiment..." (paragraph 3)

PARCC 2015

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Abigail Smith Adams | Letter to John Adams | Letter to Abigail Adams

Read the biography of Abigail Smith Adams. Then answer the questions.

Abigail Smith Adams (1744-1818)

1 Abigail Adams was more than just a First Lady. Adams was politically minded and often stood up for those who lacked power such as slaves, women, and the colonies.

2 Abigail Smith Adams was born in Massachusetts on November 11, 1744. She came from a prestigious family and was related to Thomas Sheppard and other Congregational ministers. Like other women of her era, she had no formal education, but was curious and worked hard to teach herself. She read any books that were available and became knowledgeable about a variety of subject matters most women never considered.

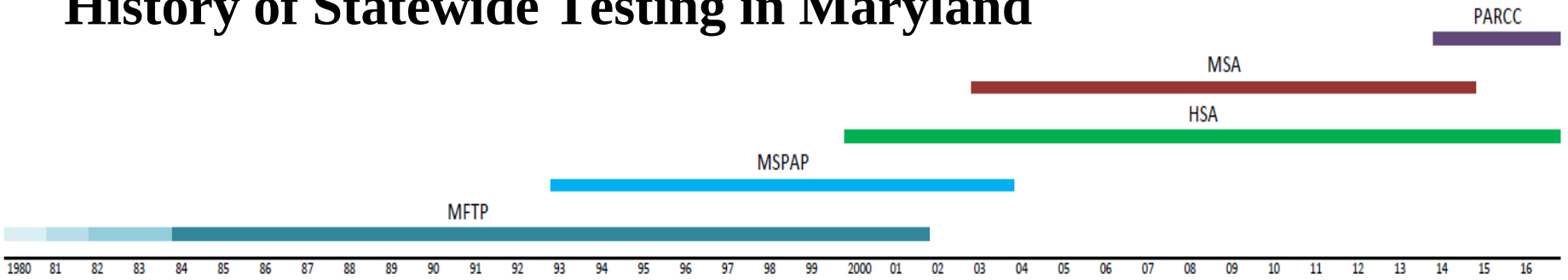
3 Abigail Smith married John Adams in 1764. He was a young Harvard graduate teaching school and trying to launch a career in

Both John and Abigail Adams believed strongly in freedom and independence. However, their letters suggest that each of them understood these terms differently based on their experiences.

Write an essay that explains their contrasting views on the concepts of freedom and independence. In your essay, make a claim about the idea of freedom and independence and how John and Abigail Adams add to that understanding and/or illustrate a misunderstanding of freedom and independence. Support your response with textual evidence and inferences drawn from all three sources.

B I U

History of Statewide Testing in Maryland



MFTP

- Maryland Functional Testing Program

Grades

- 7-8
- 9
- 10 (citizenship)
- 11

Content Areas

- Reading
- Mathematics
- Writing
- Citizenship

MSPAP

- Maryland School Performance Assessment Program

Grades

- 3, 5, 8

Content Areas

- Reading
- Language Usage
- Writing
- Mathematics
- Science
- Social Studies

HSA

- High School Assessment

Grades

- 9-12

Content Areas

- Algebra (through 2015)
- English (through 2015)
- Biology
- Government

MSA

- Maryland School Assessment

Grades

- 3-8

Content Areas

- Reading
  - 3, 5, 8 – since 2003
  - 4, 6, 7 – since 2004
- Mathematics
  - 3, 5, 8 – since 2003
  - 4, 6, 7 – since 2004
- Science
  - 5, 8 – since 2007

PARCC

- Partnership for Assessment of Readiness for College and Careers

Grades

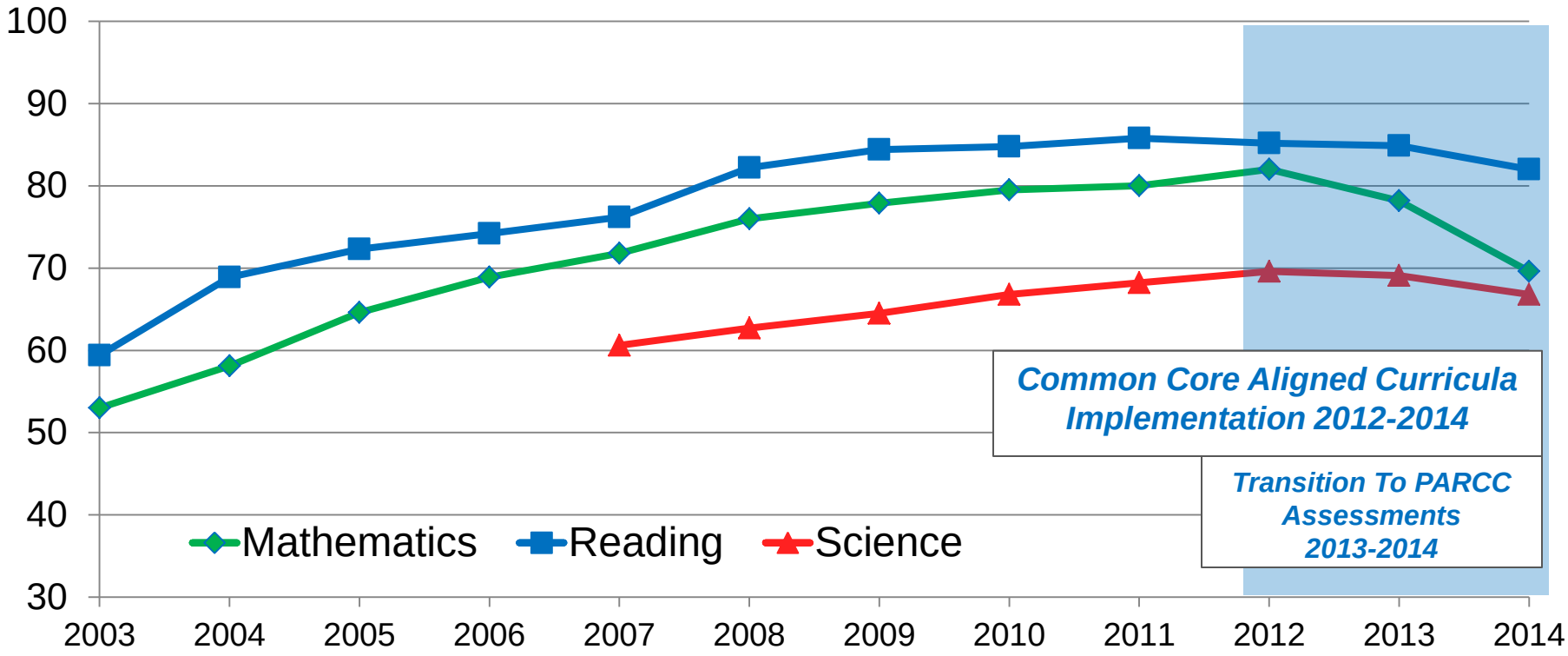
- 3-8
- High School end of course

Content Areas

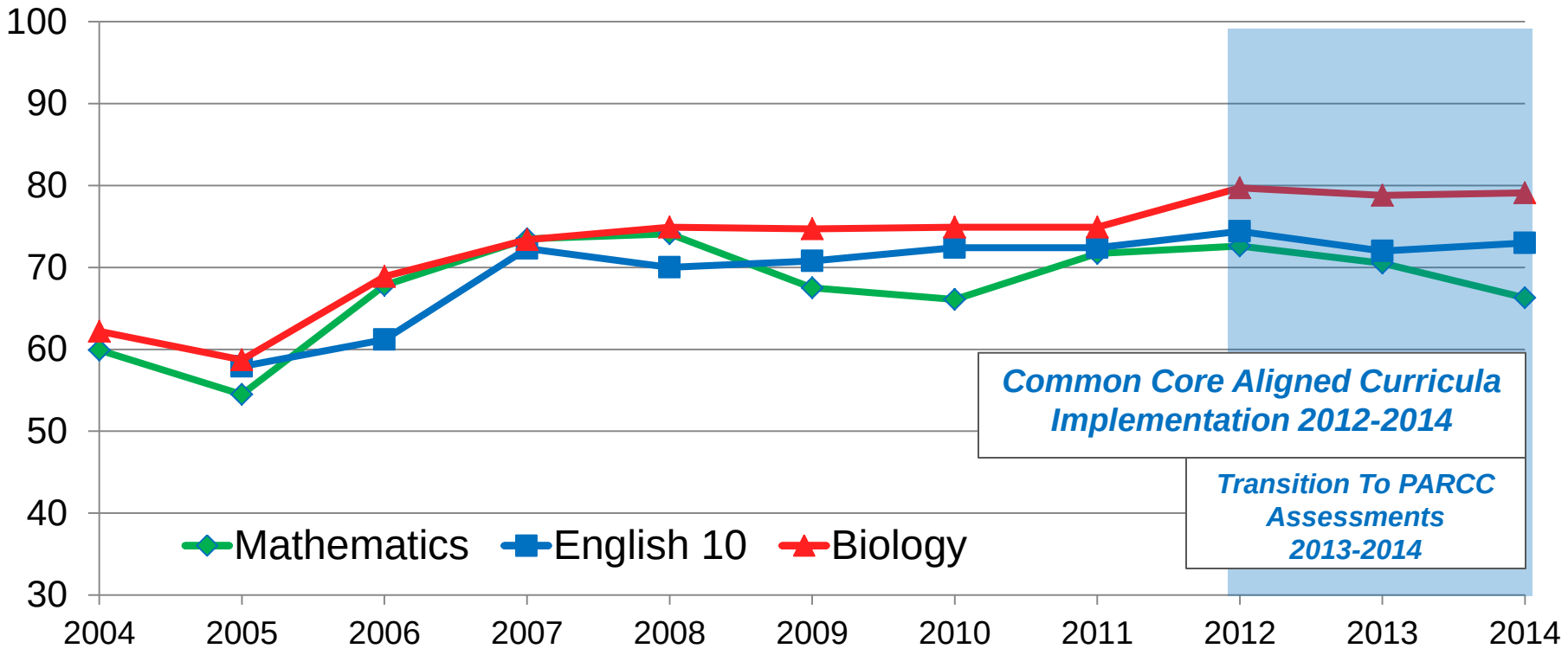
- Reading
- Mathematics
- Writing
- Algebra I, II
- Geometry (2016-17)
- English 10
- English 11 (2015-16)
- English 9 (2016-17)

MARYLAND SCHOOL ASSESSMENT PROGRAM
2003-2014 TREND BY PERCENT PROFICIENT

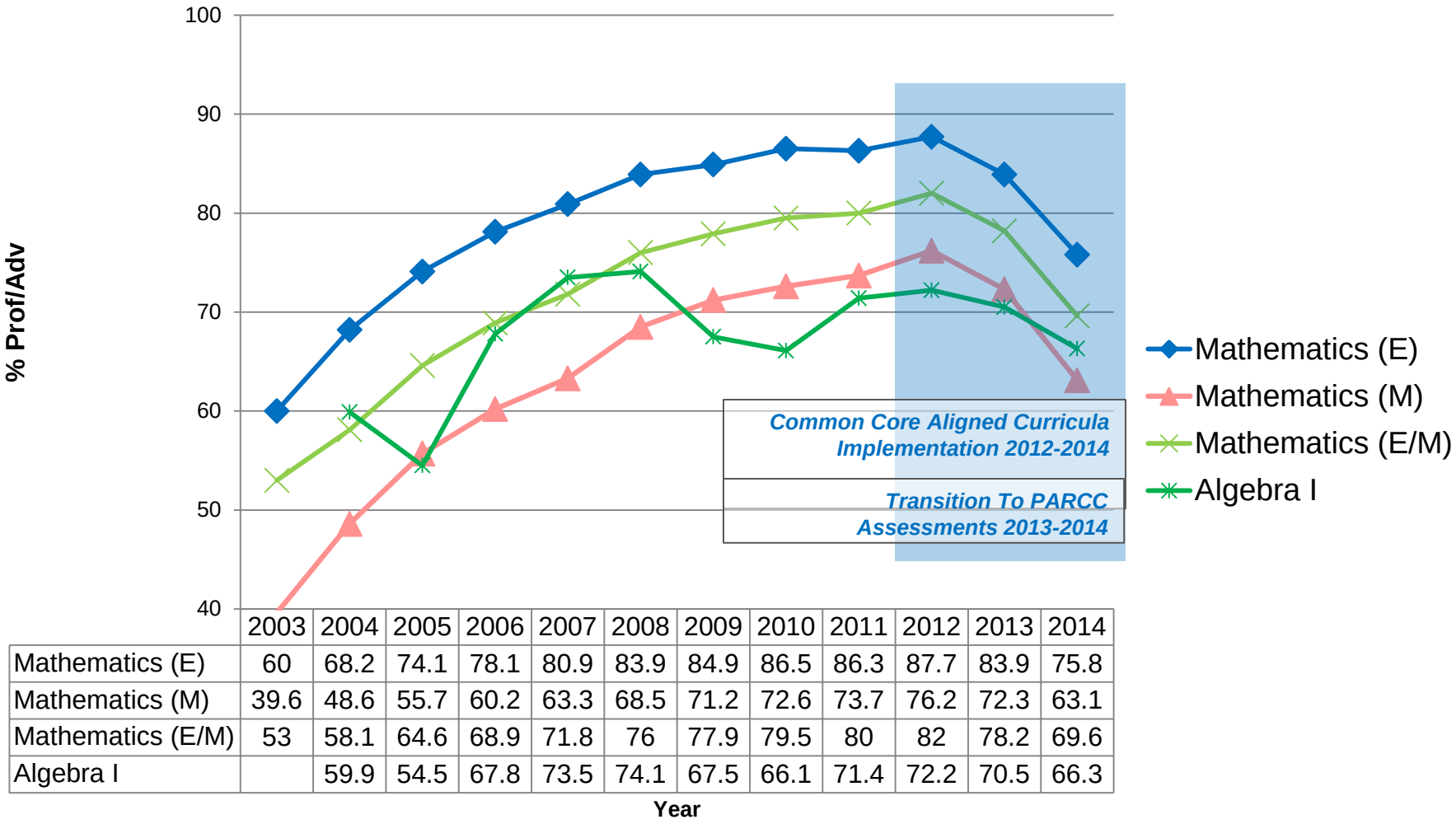
ELEMENTARY AND MIDDLE SCHOOL



HIGH SCHOOL ASSESSMENTS
2004-2014 TREND
FIRST TIME TEST TAKERS BY PERCENT PASSING



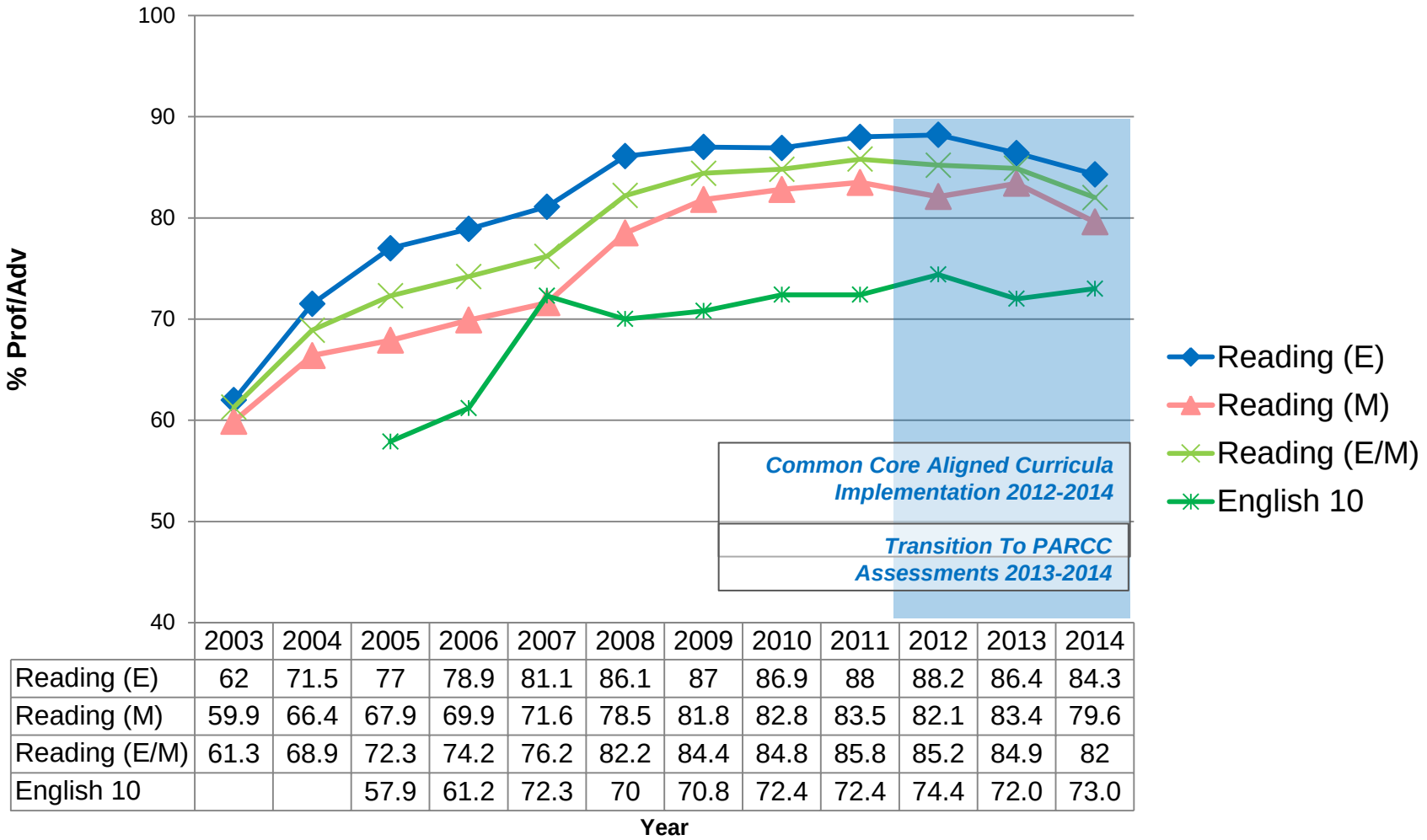
MATHEMATICS BY PROFICIENCY - ALL STUDENTS



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Mathematics (E)	60	68.2	74.1	78.1	80.9	83.9	84.9	86.5	86.3	87.7	83.9	75.8
Mathematics (M)	39.6	48.6	55.7	60.2	63.3	68.5	71.2	72.6	73.7	76.2	72.3	63.1
Mathematics (E/M)	53	58.1	64.6	68.9	71.8	76	77.9	79.5	80	82	78.2	69.6
Algebra I		59.9	54.5	67.8	73.5	74.1	67.5	66.1	71.4	72.2	70.5	66.3

** High School Assessments are first time test takers.*

READING BY PROFICIENCY - ALL STUDENTS

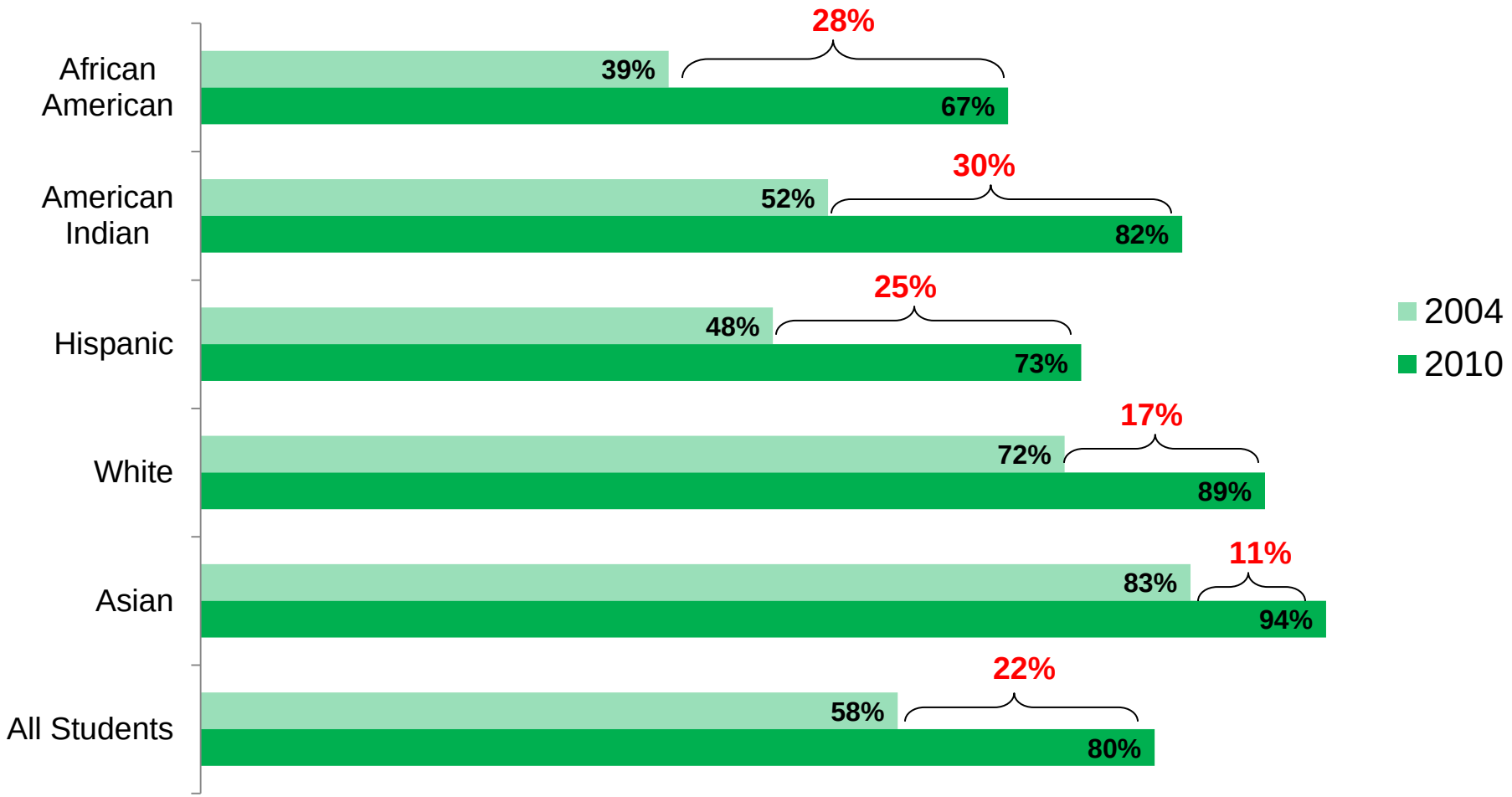


	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Reading (E)	62	71.5	77	78.9	81.1	86.1	87	86.9	88	88.2	86.4	84.3
Reading (M)	59.9	66.4	67.9	69.9	71.6	78.5	81.8	82.8	83.5	82.1	83.4	79.6
Reading (E/M)	61.3	68.9	72.3	74.2	76.2	82.2	84.4	84.8	85.8	85.2	84.9	82
English 10			57.9	61.2	72.3	70	70.8	72.4	72.4	74.4	72.0	73.0

** High School Assessments are first time test takers.*

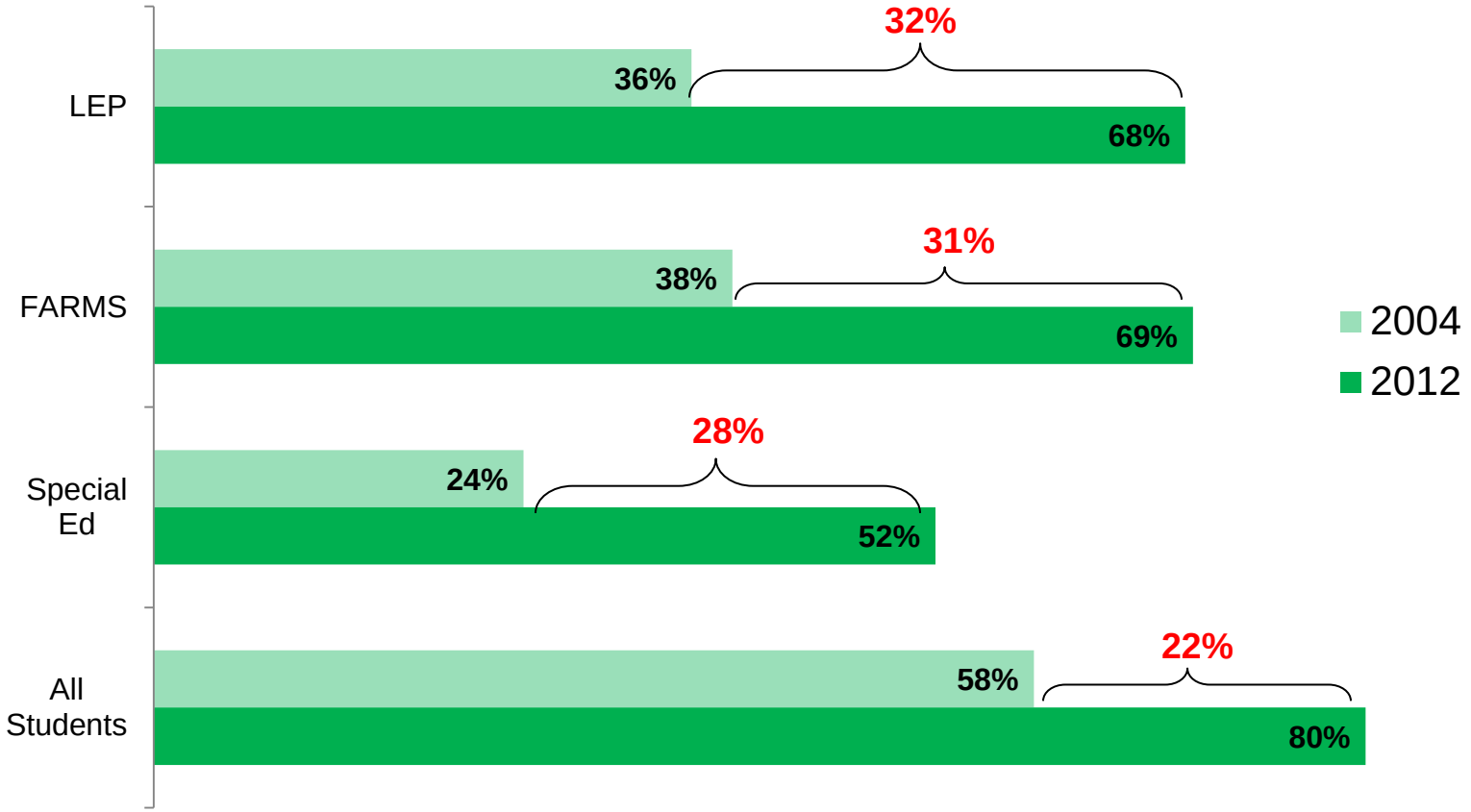
HOW DID OUR STUDENT GROUPS DO DURING THIS TIME?

Mathematics MSA Grade 3-8 Assessment
Improvement 2004 to 2010
Racial Groups by Percent Proficient

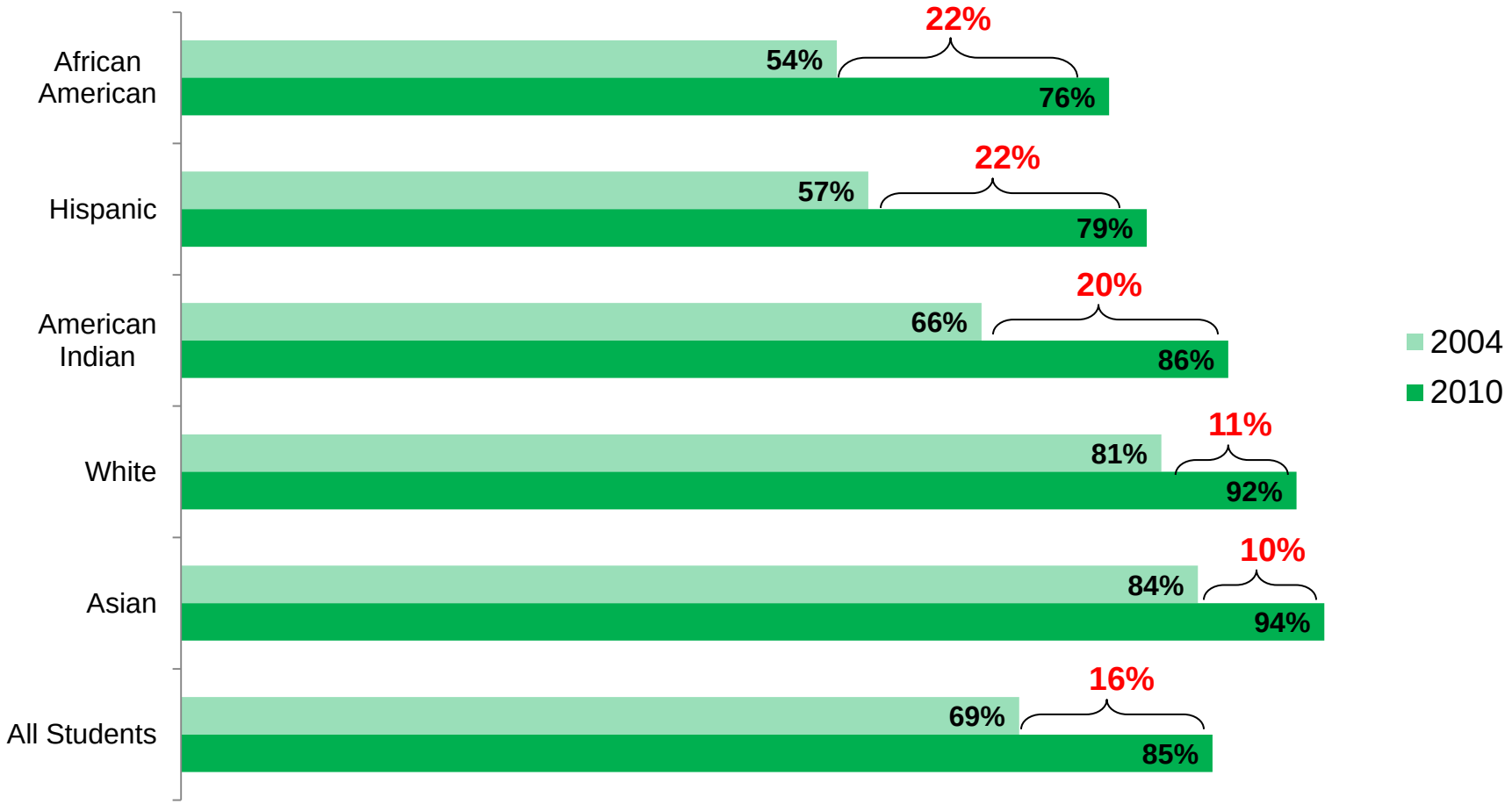


** Racial Categories were redefined in 2010 so trend data is presented from 2004 to 2010.*

Mathematics MSA 3-8 Grade Assessments
Improvement 2004 to 2012
Student Groups by Percent Proficient



Reading MSA Grade 3-8 Assessment
Improvement 2004 to 2010
Racial Groups by Percent Proficient



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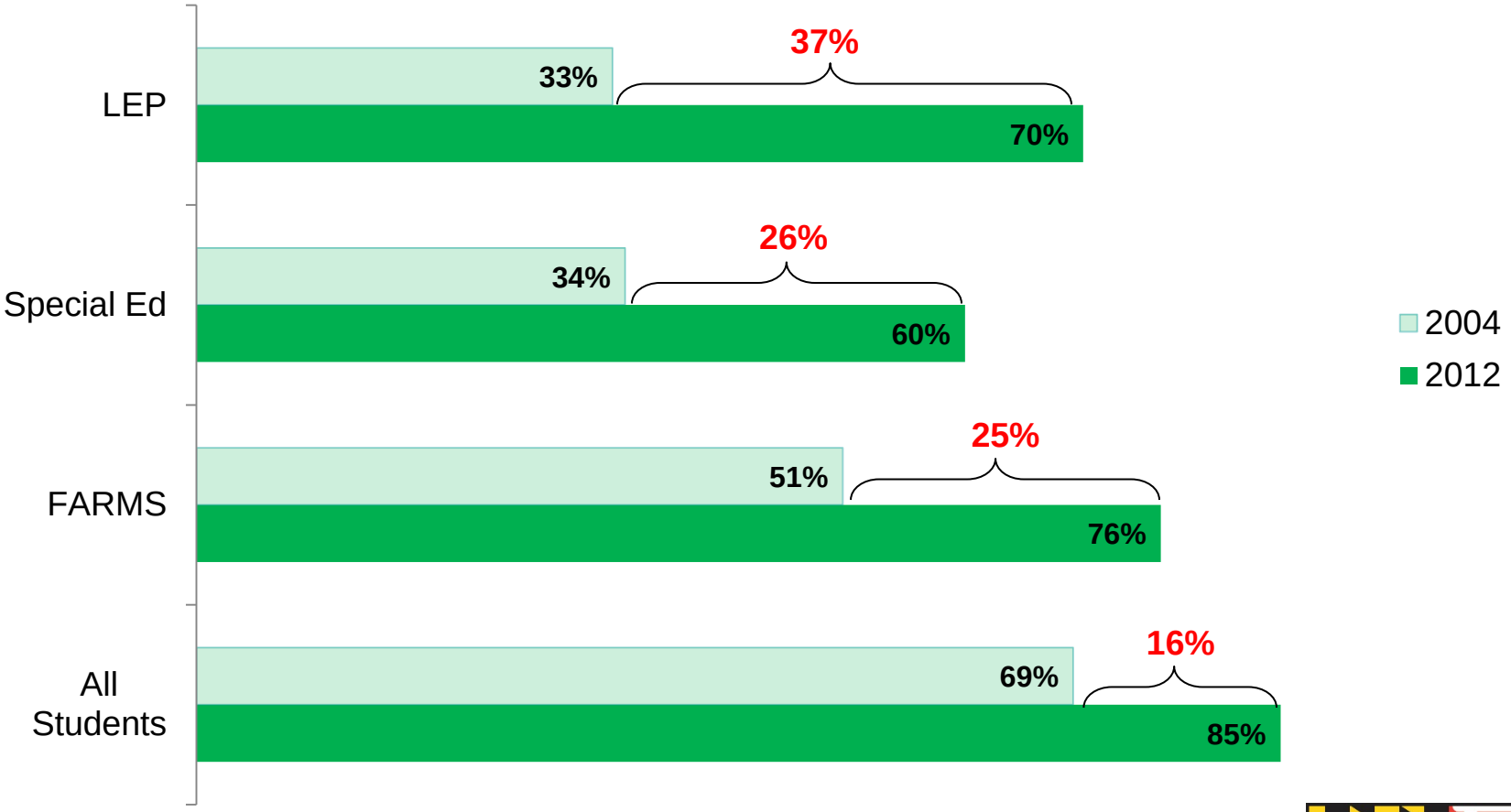
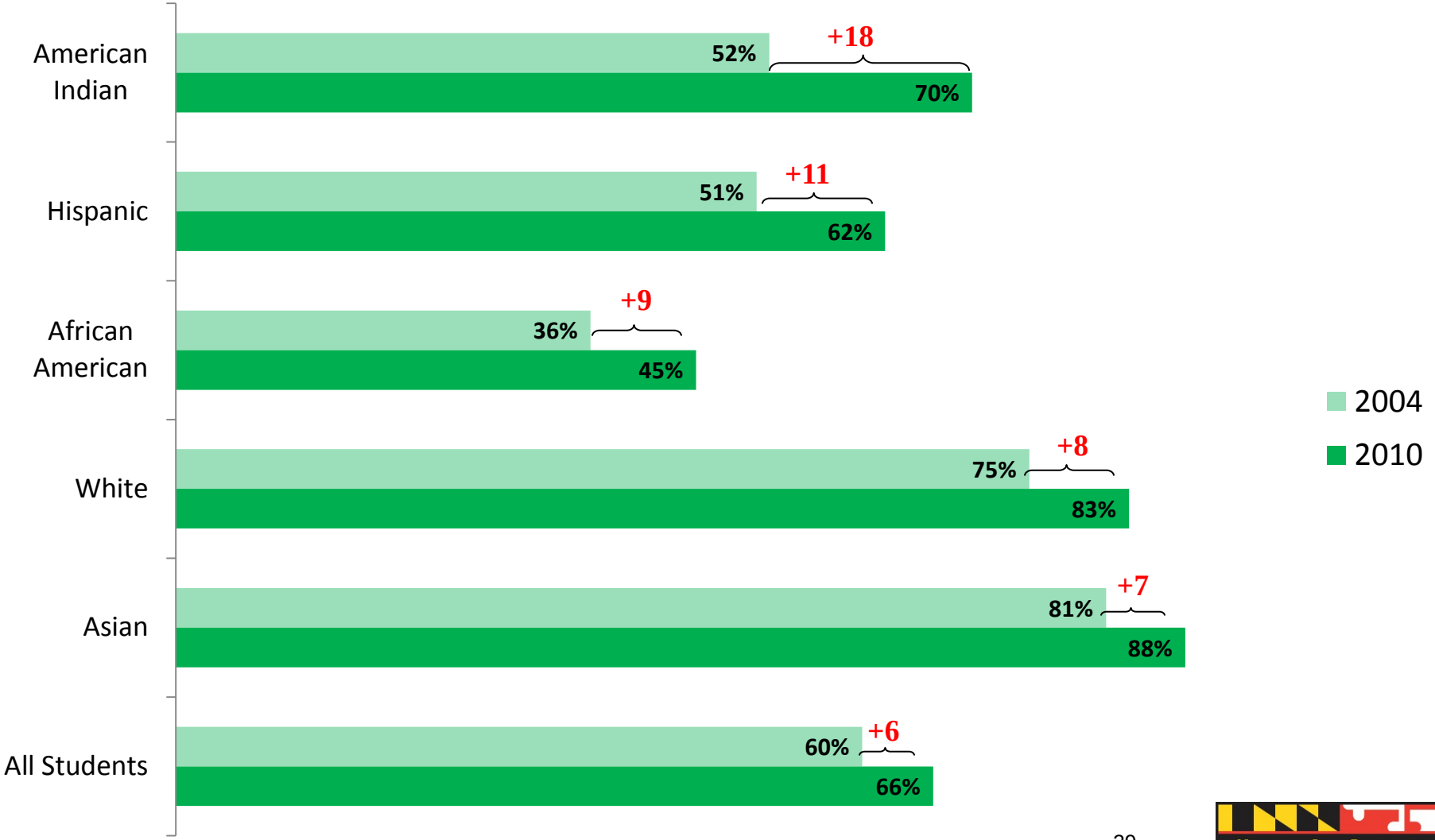
MSA Reading Grade 3-8 Assessments:
Improvement 2004 to 2012
Student Groups by Percent Proficient



HSA ALGEBRA I
Improvement 2004 to 2010
Racial Groups by Percent Passing



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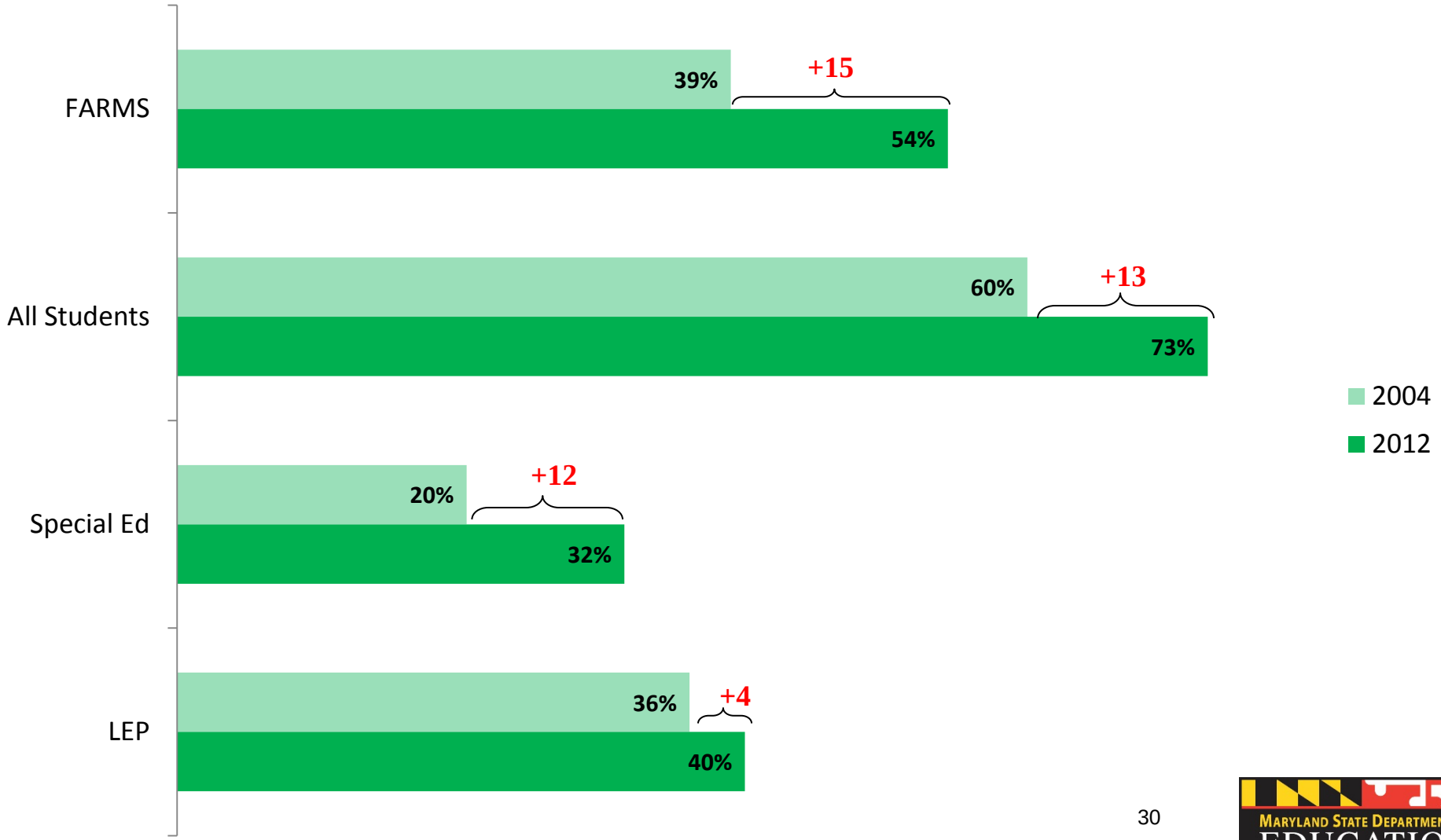
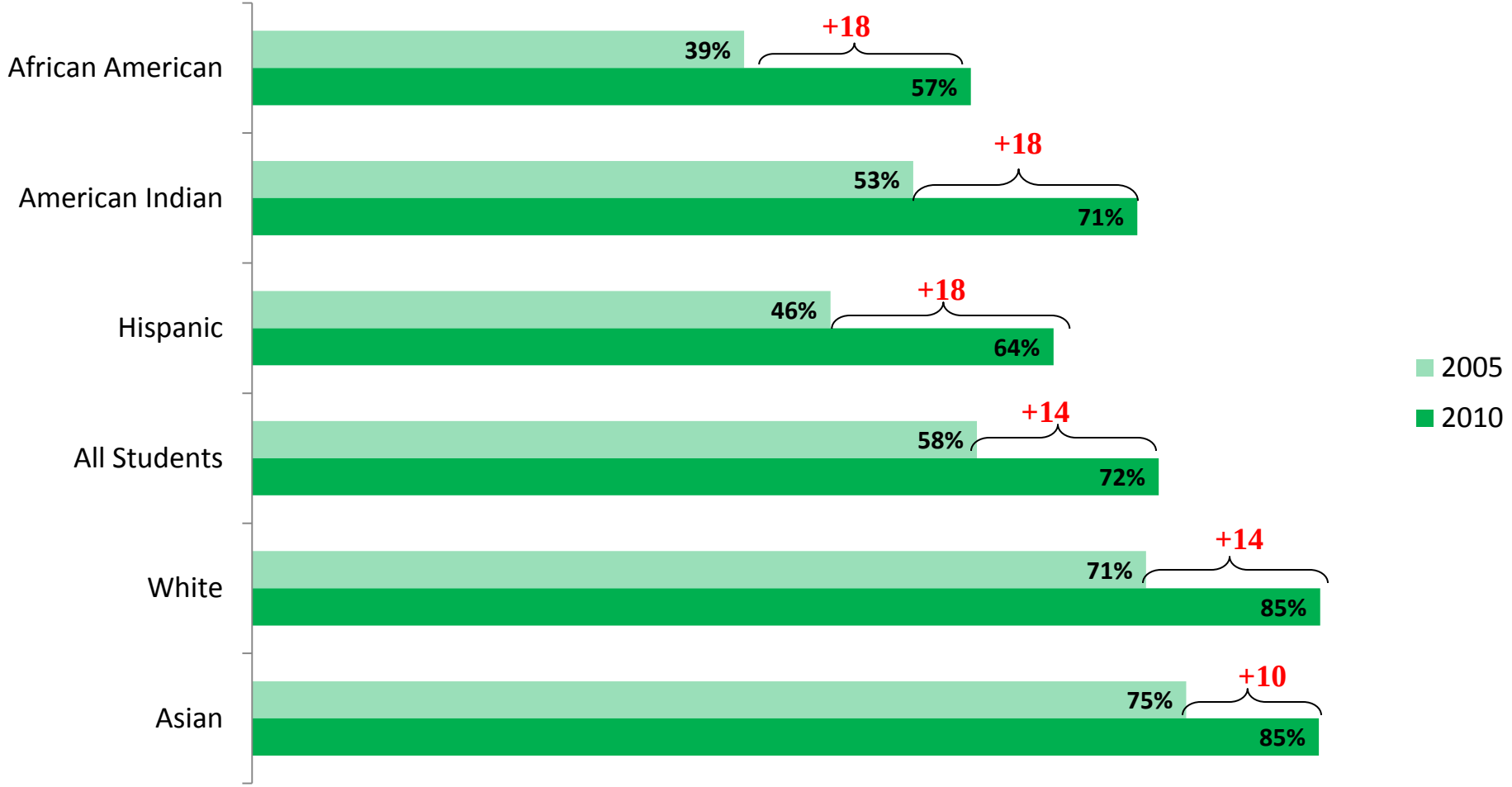
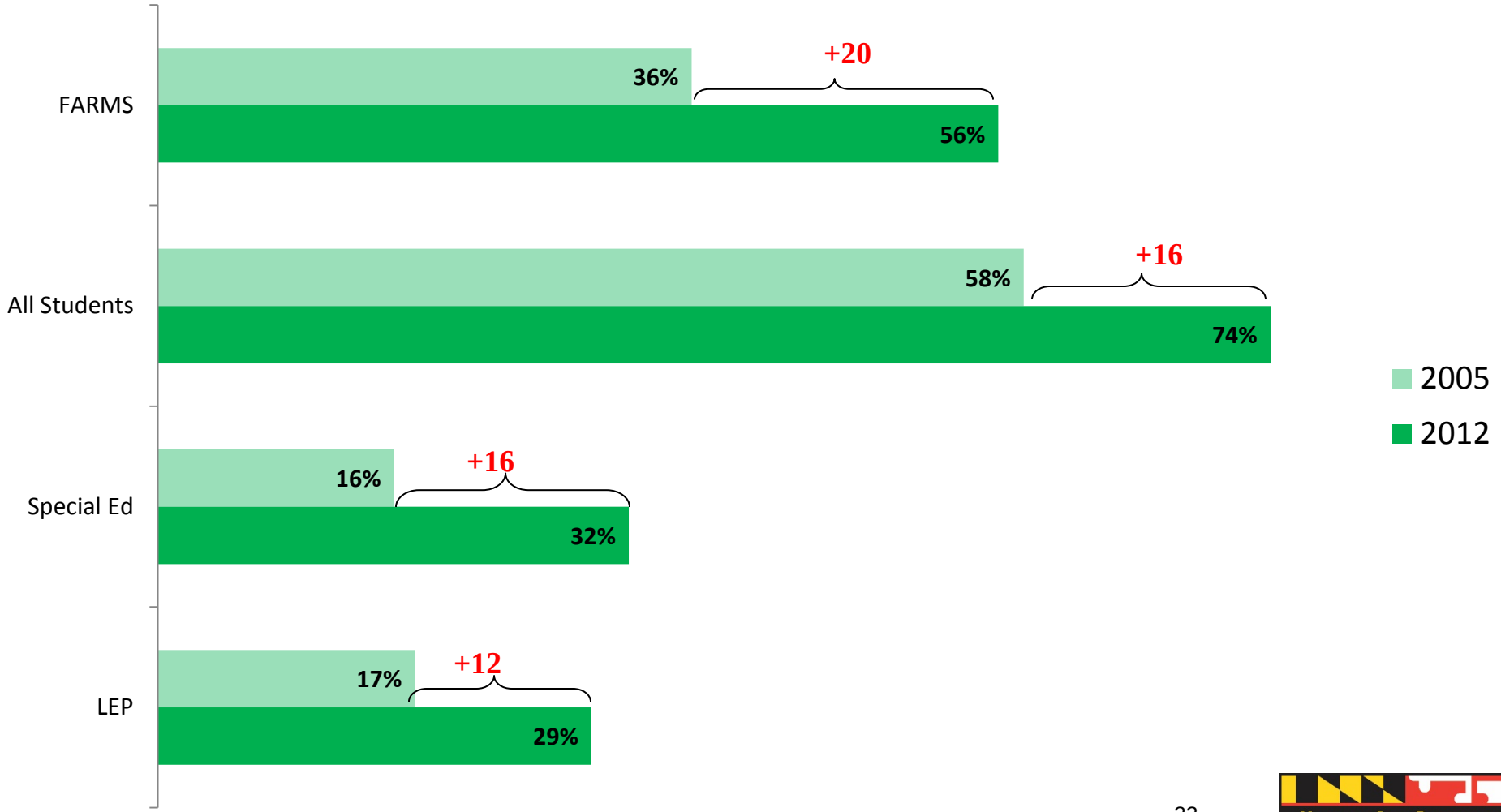
HSA ALGEBRA I
Improvement 2004 to 2012
Student Groups by Percent Passing



HSA English 10
Improvement 2005 to 2010
Racial Groups by Percent Passing

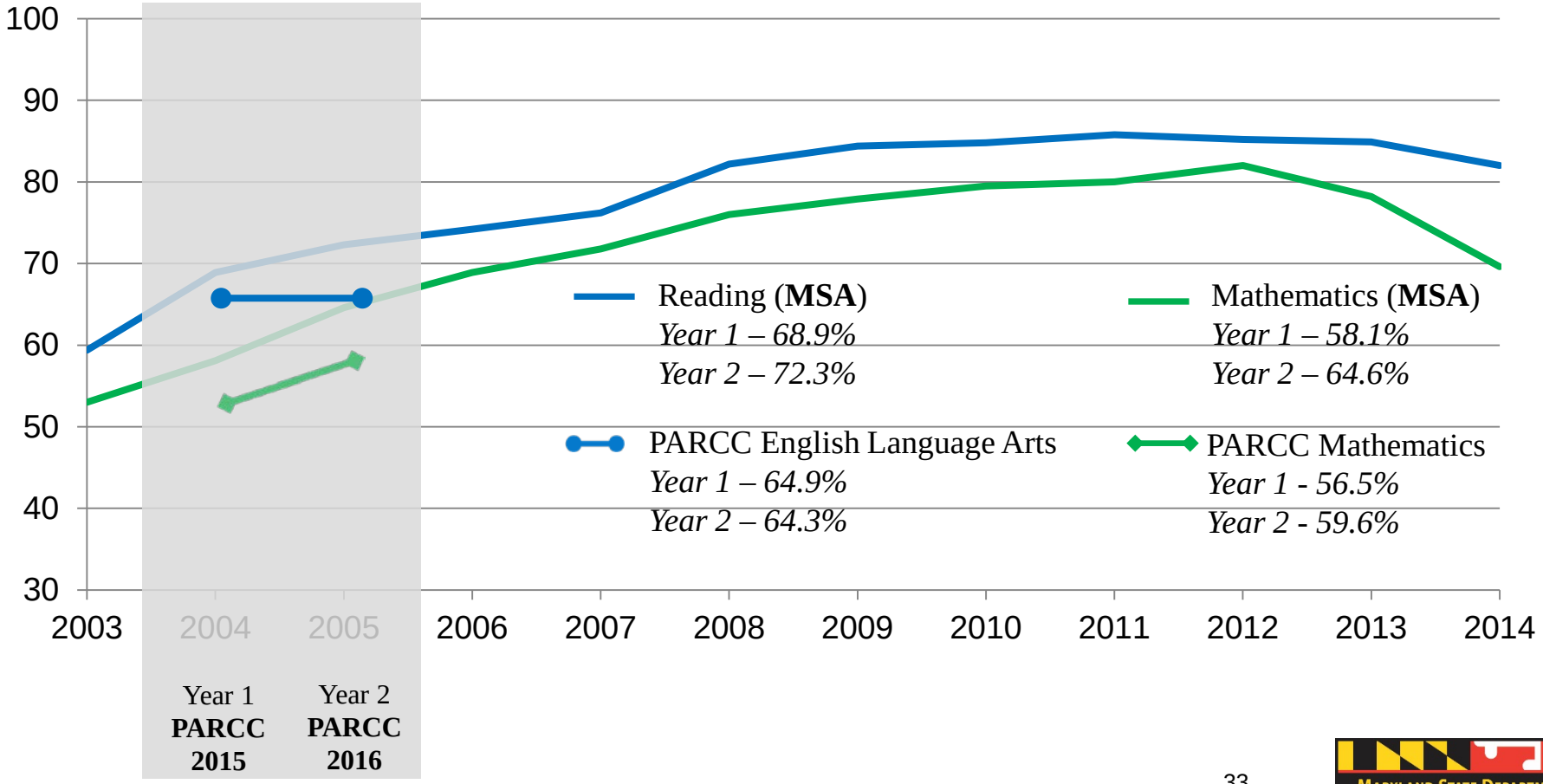


HSA English 10
Improvement 2005 to 2012
Student Groups by Percent Passing

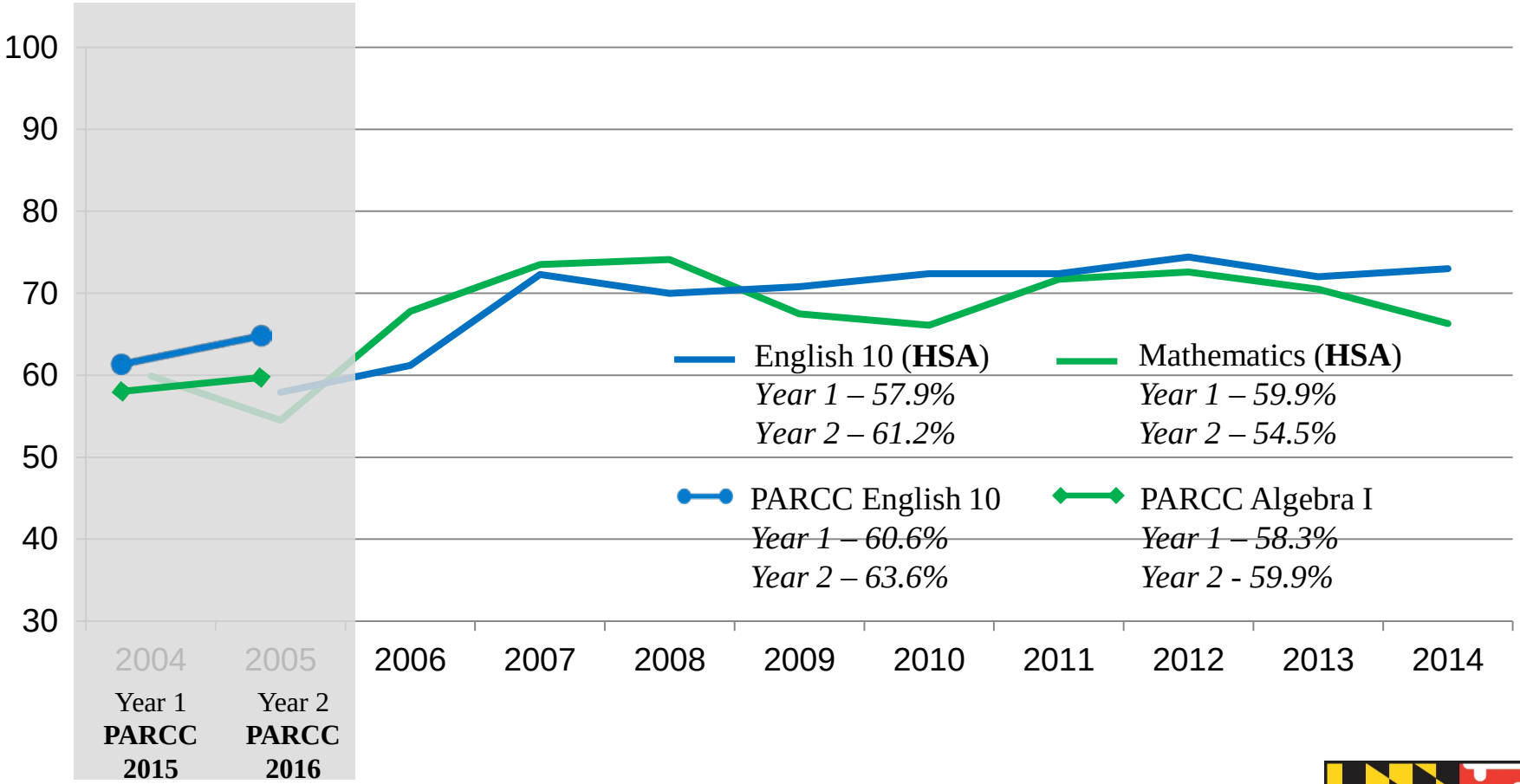


** HSA English 10 was first administered in 2005.*

PARCC ELEMENTARY AND MIDDLE SCHOOL RESULTS BY PERCENT AT PERFORMANCE LEVEL 3, 4 AND 5 YEAR 1 (2014-2015) AND YEAR 2 (2015-2016)

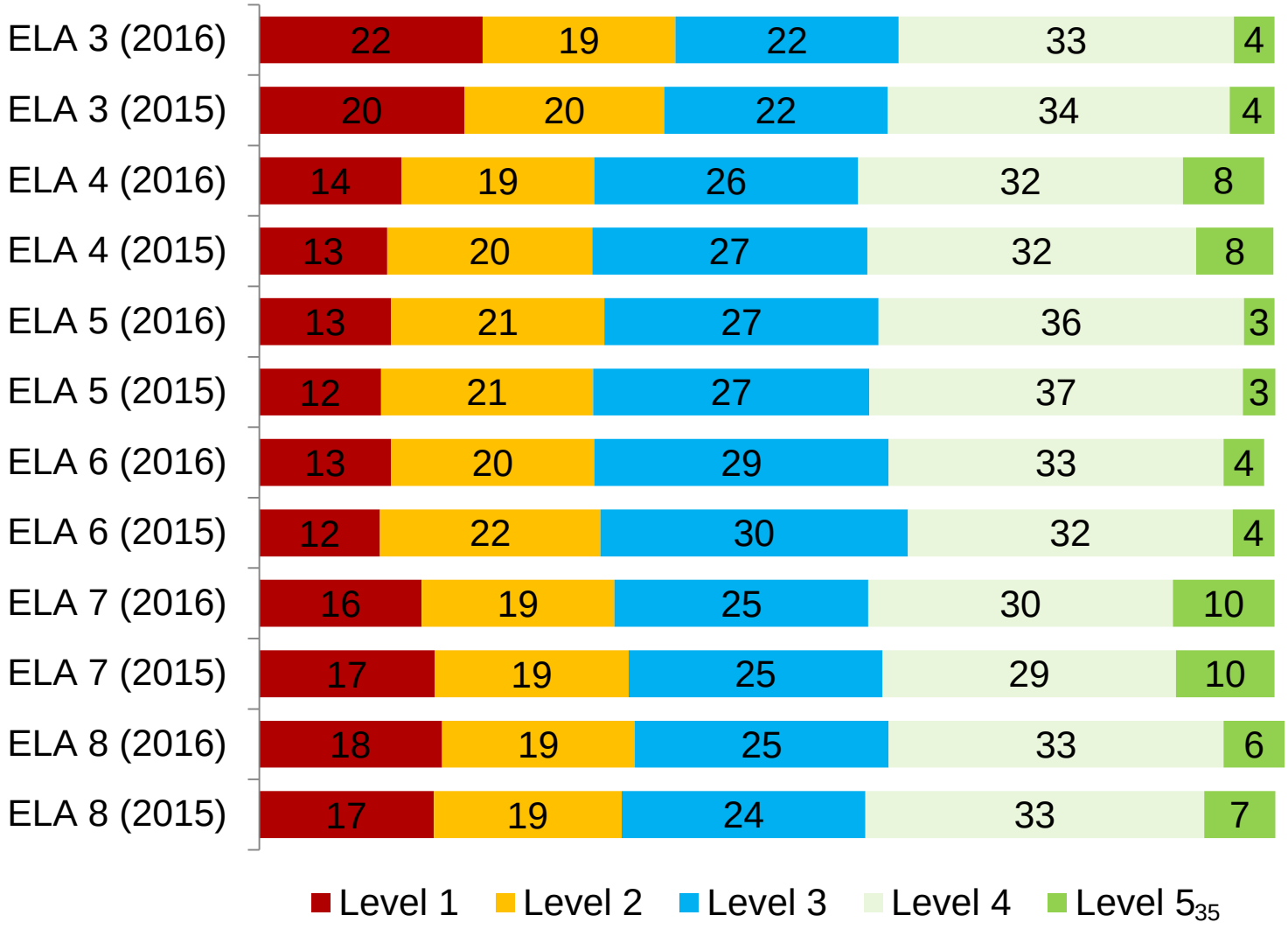


PARCC HIGH SCHOOL ASSESSMENT
RESULTS BY PERCENT AT PERFORMANCE LEVEL 3, 4 AND 5
YEAR 1 (2014-2015) AND YEAR 2 (2015-2016)



PARCC ENGLISH LANGUAGE ARTS – Grades 3 - 8

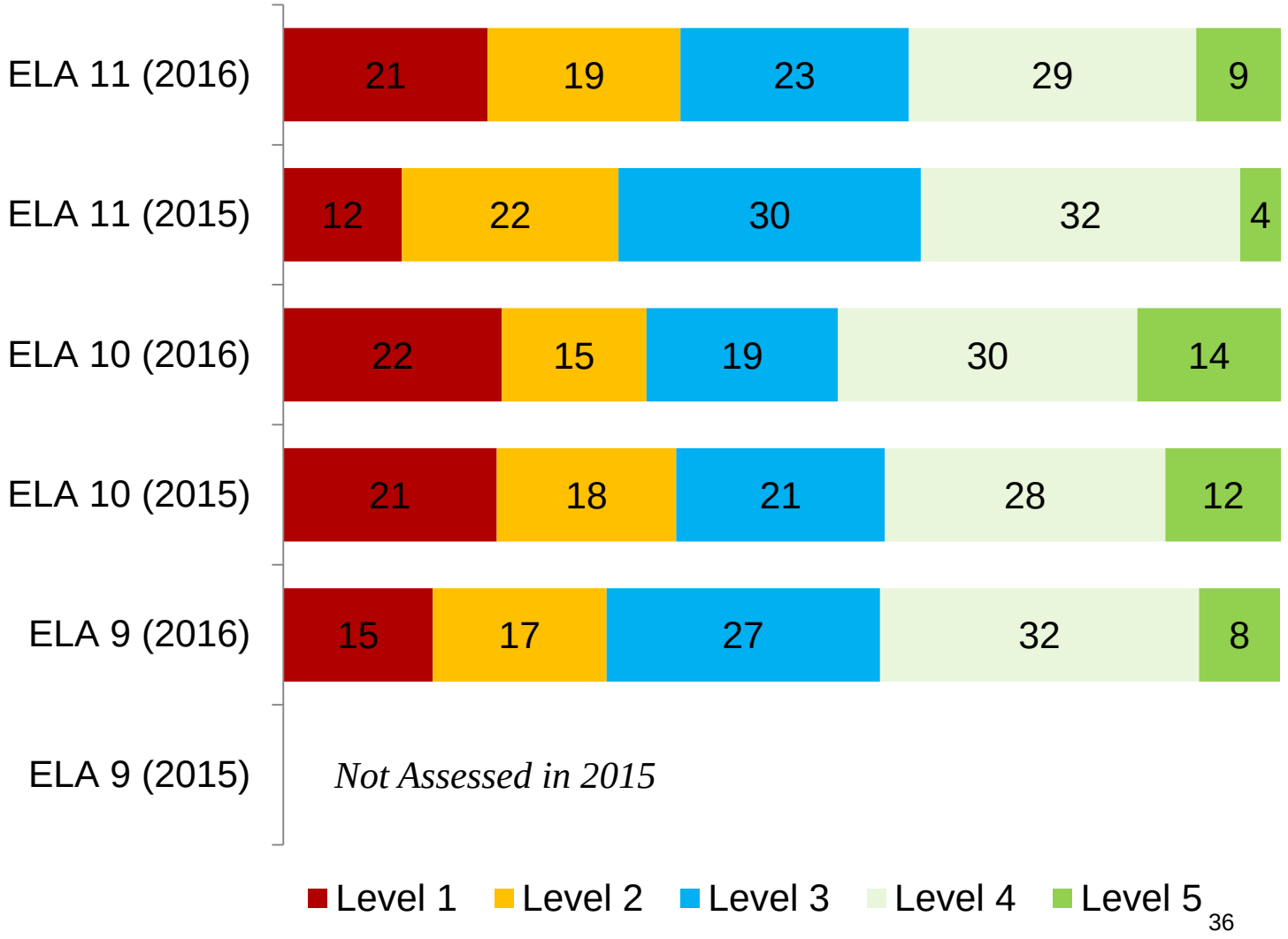
2015, 2016 Results by Performance Level



Note: Percentages may not total 100% due to rounding

PARCC ENGLISH LANGUAGE ARTS – High School

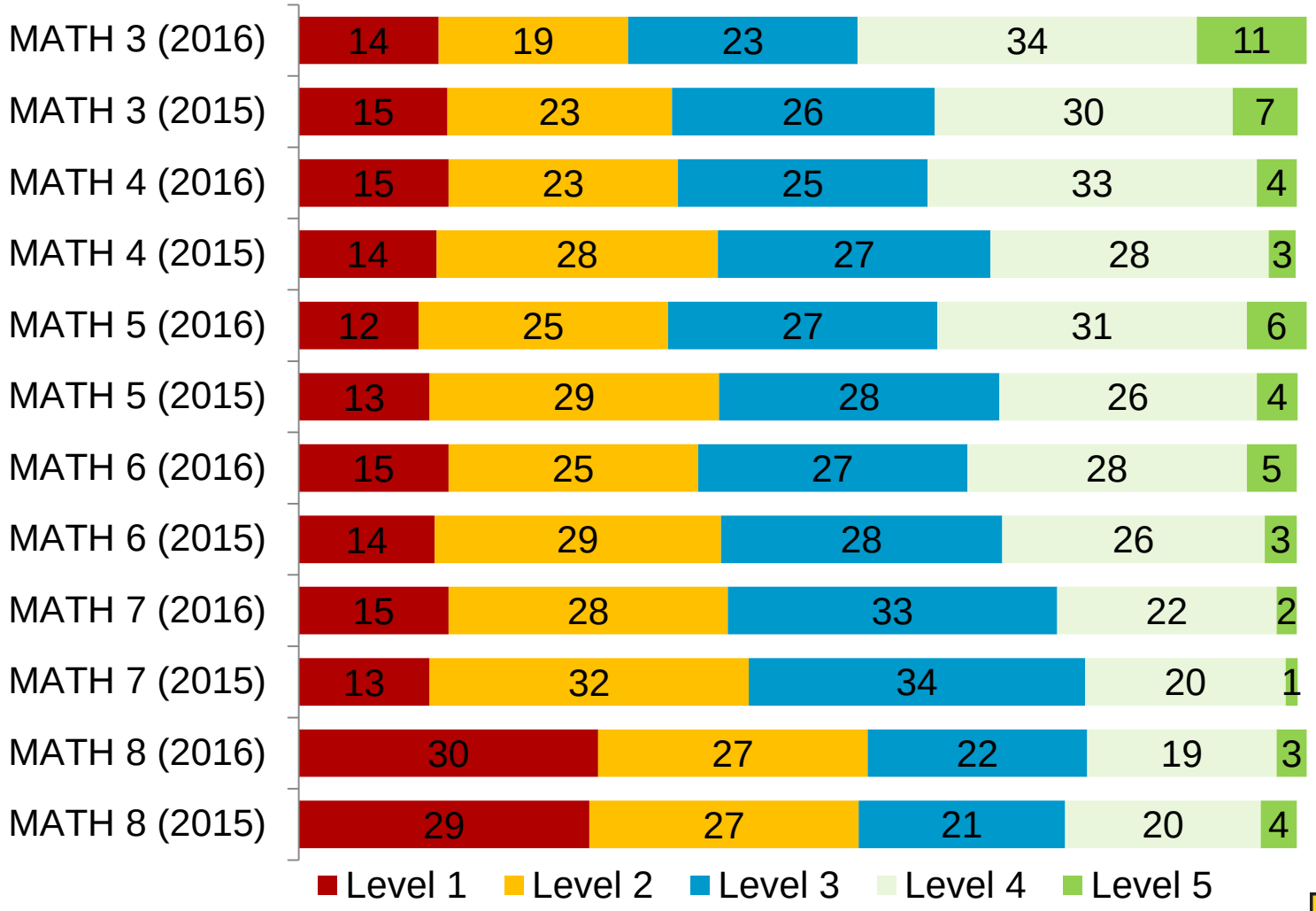
2015, 2016 Results by Performance Level



Note: Percentages may not total 100% due to rounding

PARCC MATHEMATICS Grades 3-8

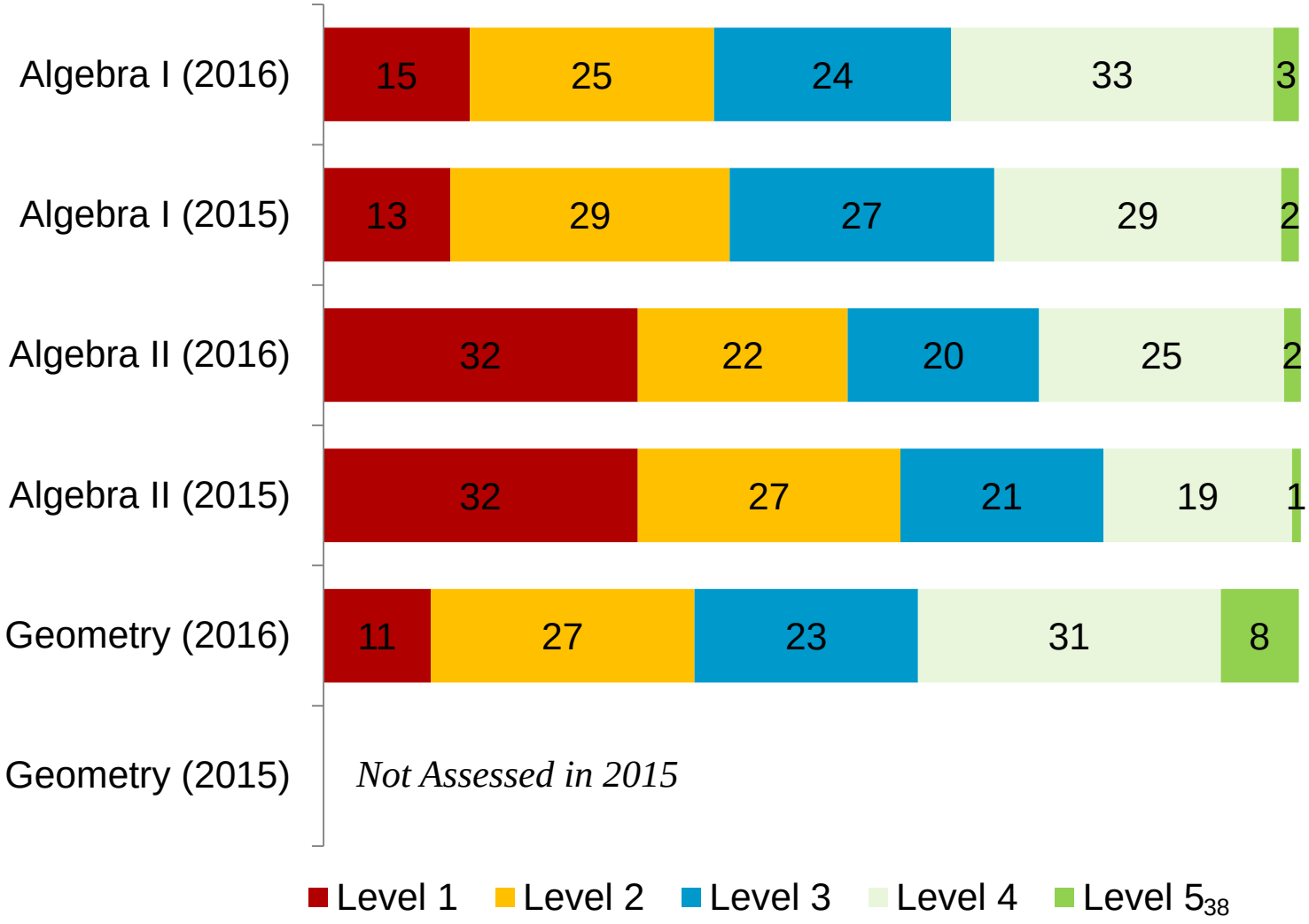
2015, 2016 Results by Performance Level



Note: Students in Grades 3-8 taking end of course Assessment s (Algebra I, II, Geometry)are not included .
Percentages may not total 100% due to rounding

PARCC MATHEMATICS – High School

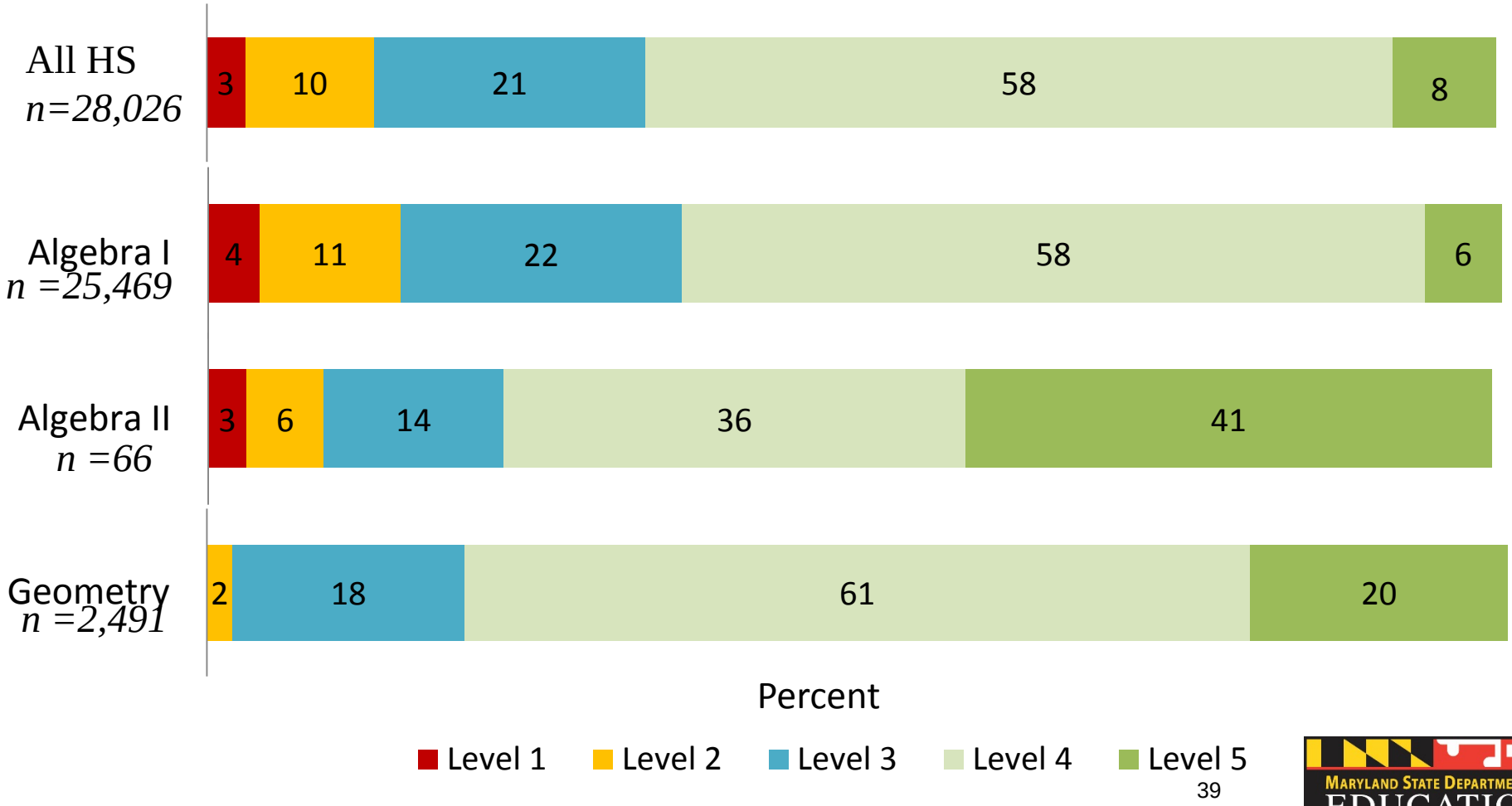
2015, 2016 Results by Performance Level



Percentages may not total 100% due to rounding

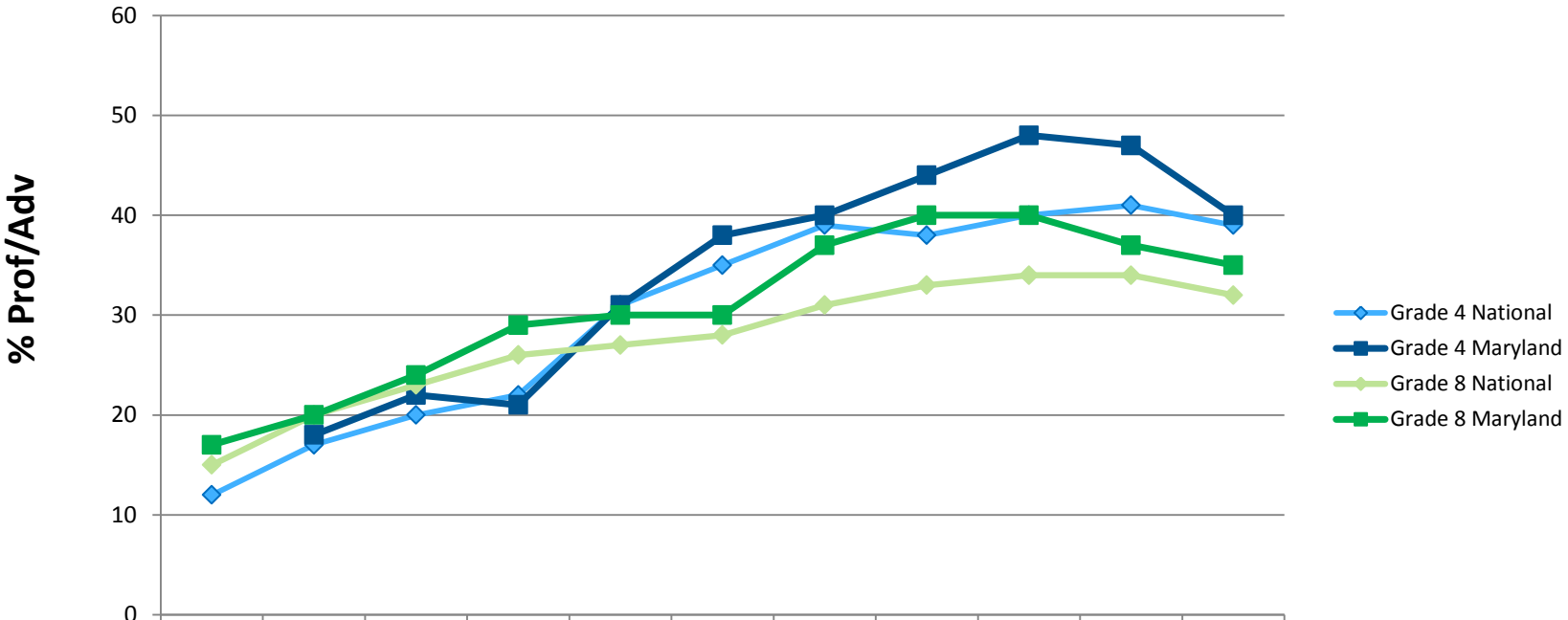
2016 Maryland PARCC End of Course Assessment

Mathematics by Performance Level : Middle School Students



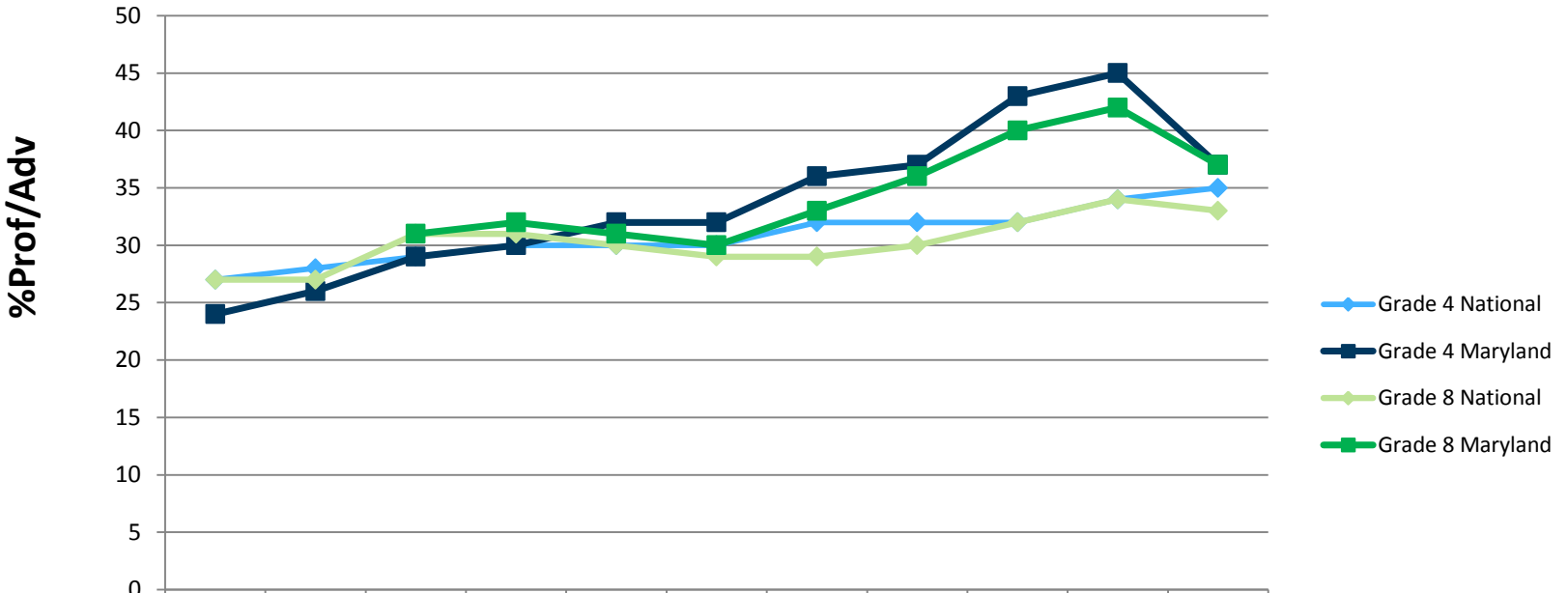
Note: Percentages may not total 100% due to rounding

NAEP Math Proficiency
All Students



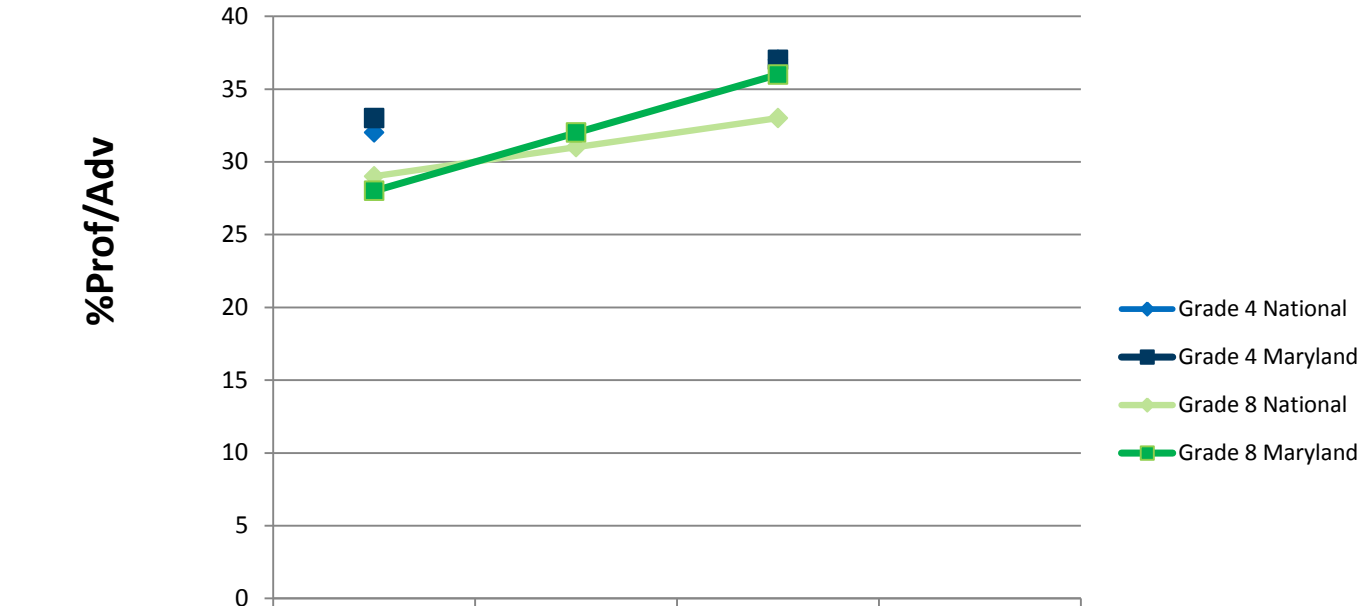
	1990	1992	1996	2000	2003	2005	2007	2009	2011	2013	2015
Grade 4 National	12	17	20	22	31	35	39	38	40	41	39
Grade 4 Maryland		18	22	21	31	38	40	44	48	47	40
Grade 8 National	15	20	23	26	27	28	31	33	34	34	32
Grade 8 Maryland	17	20	24	29	30	30	37	40	40	37	35

NAEP Reading Proficiency
All Students



	1992	1994	1998	2002	2003	2005	2007	2009	2011	2013	2015
Grade 4 National	27	28	29	30	30	30	32	32	32	34	35
Grade 4 Maryland	24	26	29	30	32	32	36	37	43	45	37
Grade 8 National	27	27	31	31	30	29	29	30	32	34	33
Grade 8 Maryland			31	32	31	30	33	36	40	42	37

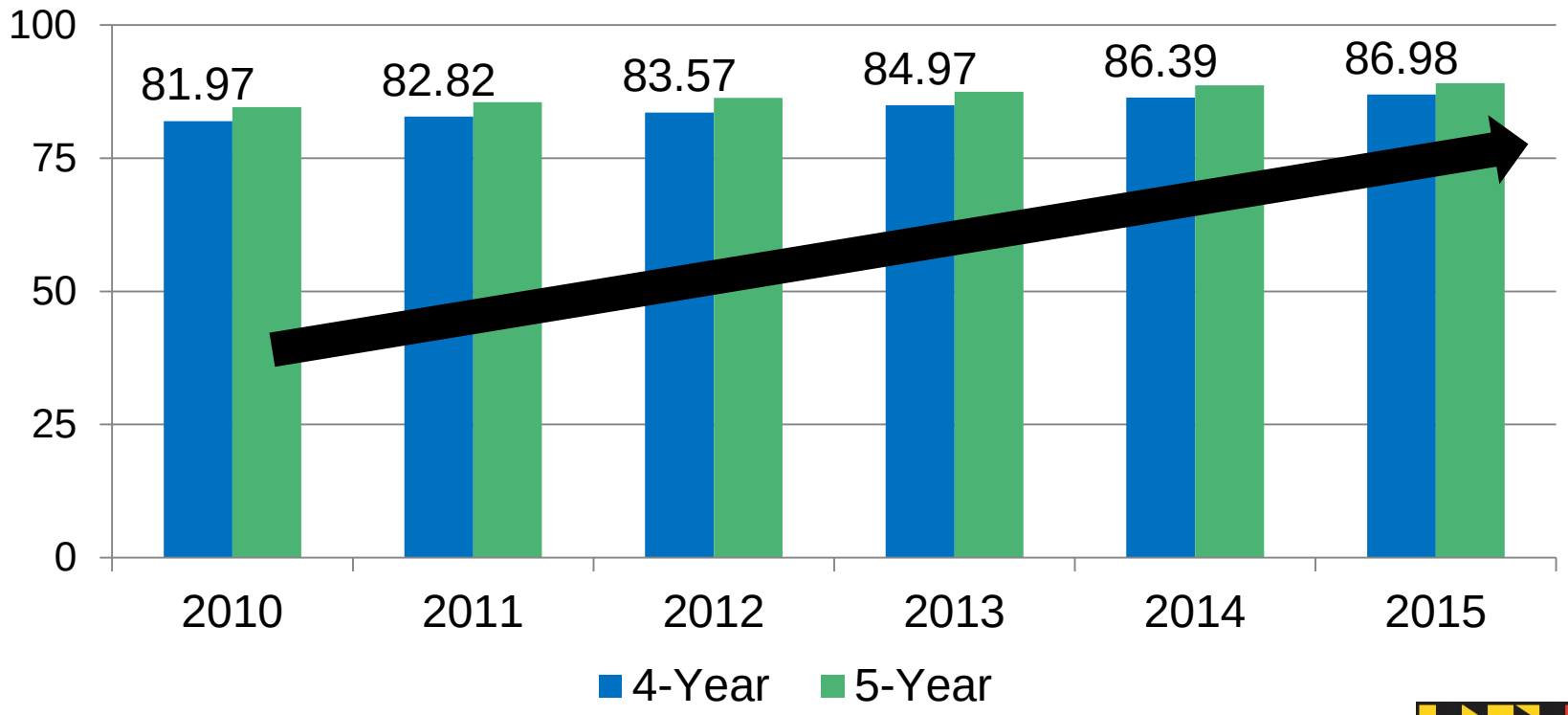
NAEP Science Proficiency
All Students

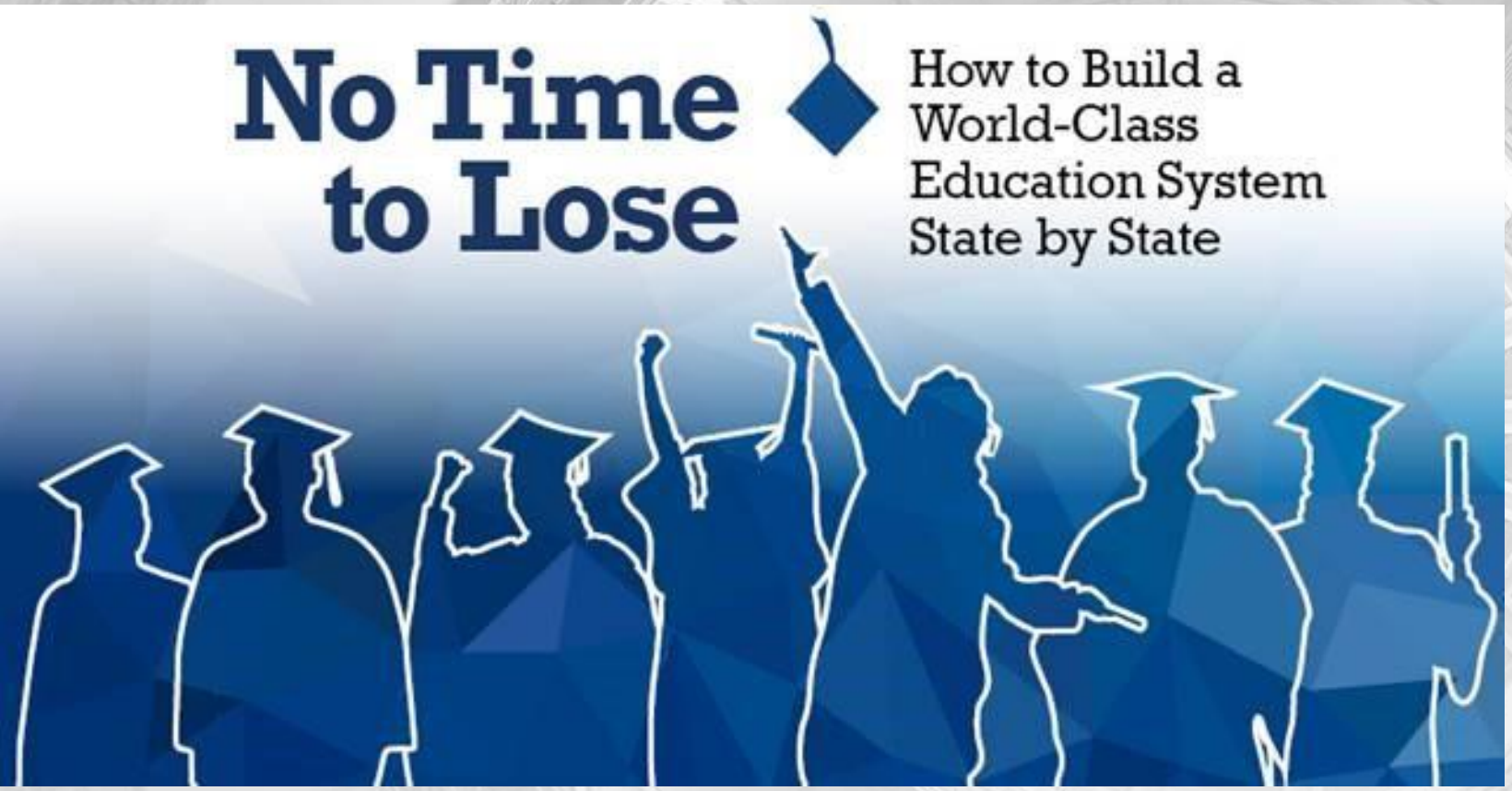


	2009	2011	2015	
Grade 4 National	32		37	
Grade 4 Maryland	33		37	
Grade 8 National	29	31	33	
Grade 8 Maryland	28	32	36	

Cohort Graduation Rate Trend: 4-Year and 5-Year

Increase in Graduation Rates Continue with the Class of 2015





LEE POSEY, NCSL

About NCSL

- Instrumentality of all 50 state and territorial legislatures
- Bipartisan
- Provides research, technical assistance and opportunities to exchange ideas
- Advocates on behalf of legislatures before the federal government

NCSL is committed to the success of state legislators and staff. Founded in 1975, we are a respected bipartisan organization providing states support, ideas, connections and a strong voice on Capitol Hill.

NCSL International Education Study Group -- 28 legislators and staff

- 22 legislators and 6 legislative staff
- Eighteen months of work
  - Consulted experts
  - Studied 10 top performing countries/provinces

    (Alberta, Ontario, Estonia, Finland, Hong Kong, Japan, Poland, Shanghai, Singapore, Taiwan)
- Preparing for Phase II

NCSL Legislative Study Group Findings: Good News and Bad News

- **Bad news:** Most state education systems are falling dangerously behind the world in a number of international comparisons and on our own National Assessment of Educational Progress, leaving the United States overwhelmingly underprepared to succeed in the 21st century economy.
- **Good news:** The good news is, by studying these other high-performing systems, we are discovering what seems to work. If we get to work right away, we can quickly turn this around as high-performing countries have.

International Surveys Sound Alarms

U.S. RANKING ON PISA

The Programme for International Student Assessment (PISA) is a comparative study of 15-year-old students' knowledge in key areas including math, reading and science.

YEAR (COUNTRIES TESTED)	U.S. RANKING		
	READING	MATH	SCIENCE
2000 (32)	15th	19th	14th
2003 (41)	18th	28th	22nd
2006 (57)	NR	34th	28th
2009 (65)	17th	30th	22nd
2012 (65)	24th	36th	28th

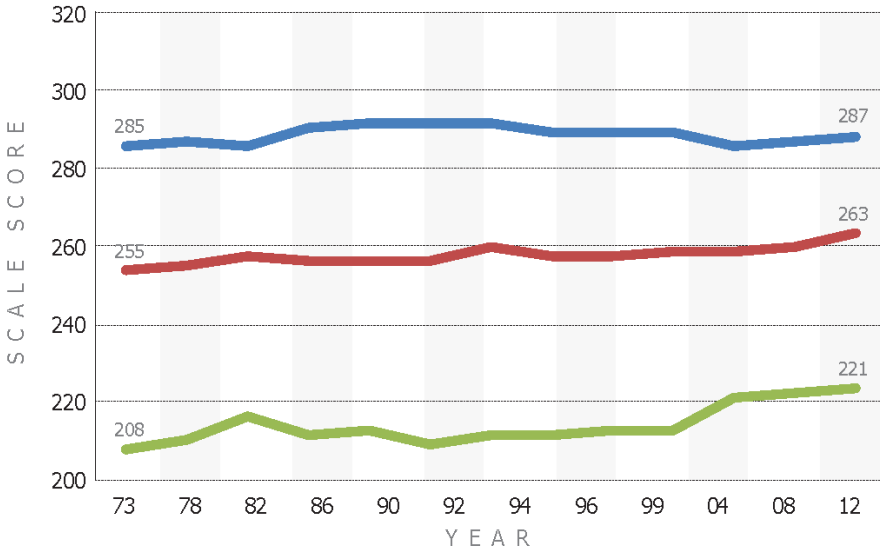
NCSL Graphic | Source: National Center on Education and the Economy, Center on International Education Benchmarking, 2013

- U.S. rankings are sinking on PISA
- ETS analysis finds U.S. Millenial generation workers ranked last in 2013 OECD PIAAC survey of worker numeracy, literacy and problem solving in 33 countries

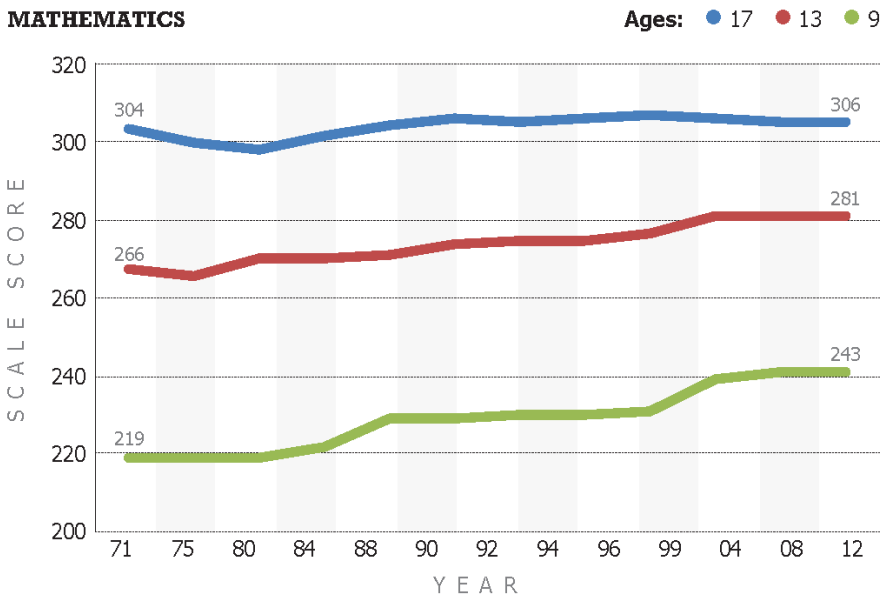
LONG-TERM NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (NAEP) SCORES

Over the past four decades, high school students in the U.S. have made little progress according to the "Nation's Report Card," administered by the NAEP.

READING



MATHEMATICS



NCSL Graphic | Source: National Center for Education Statistics (2012). Trends in Academic Progress

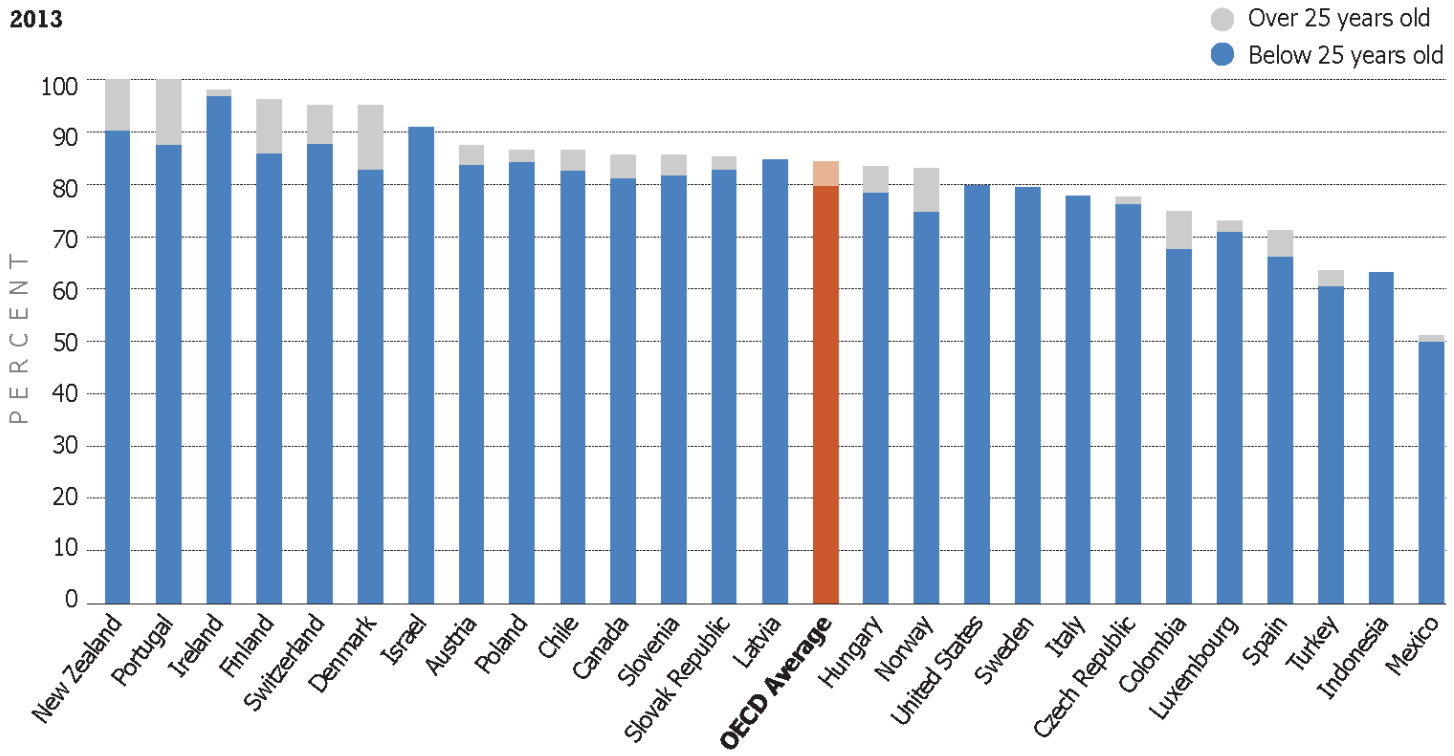
Our Own NAEP Sounds Alarms: Little to No Progress

CONFERENCE of STATE LEGISLATURES

Can the US be Fairly Compared to World Class Education Systems?

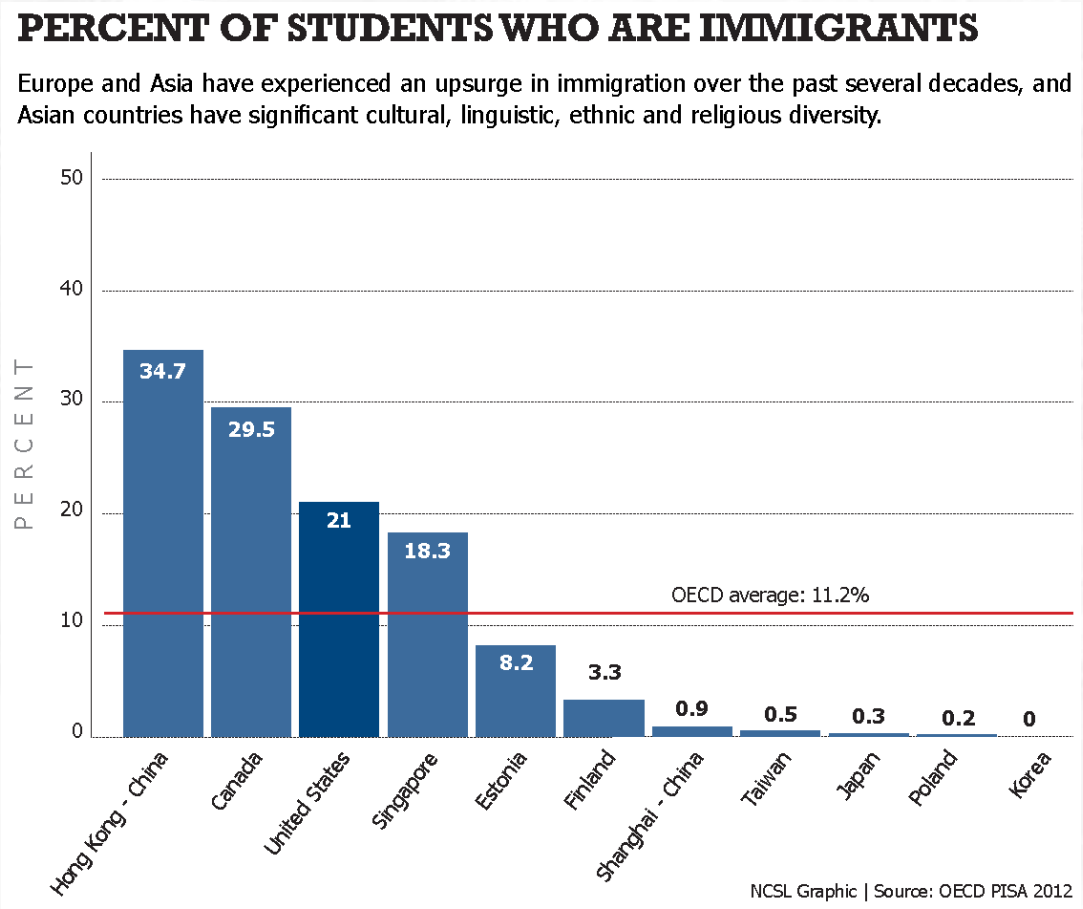
UPPER SECONDARY GRADUATION RATES, 2013

The OECD reports that the U.S. graduation rate is 80 percent, lower than most other high-performing countries. This dispels the assertion that other high-performing countries educate only their elite.



NCSL Graphic | Source: OECD (2015), Education at a Glance 2015: OECD Indicators, OECD Publishing. http://dx.doi.org/10.1787/eag-2015-en, p. 48

Can the U.S. be Fairly Compared to World Class Education Systems? (continued)



Elements of High-Performing Systems:

Common Element #1

Children come to school ready to learn, and extra support is given to struggling students so that all have the opportunity to achieve high standards.

Elements of High-Performing Systems:

Common Element #2

A world-class teaching profession supports a world-class instructional system, where every student has access to highly-effective teachers and is expected to succeed.

Elements of High-Performing Systems:

Common Element #3

A highly-effective, intellectually rigorous system of career and technical education is available to those preferring an applied education.

Elements of High-Performing Systems:

Common Element #4

Individual reforms are connected and aligned as parts of a clearly planned and carefully designed comprehensive system.

Action Steps for States

- ✓ Build an Inclusive Team and Set Priorities.
- ✓ Study and Learn from Top Performers.
- ✓ Create a Shared Statewide Vision.
- ✓ Benchmark Policies.
- ✓ Get Started on One Piece.
- ✓ Work Through "Messiness."
- Invest the Time.

Urgent Call to Action: Begin Now, No Time to Lose!

"As state policymakers, it is our responsibility to provide our citizens with a world-class education. We cannot let another generation settle for anything less. Our future workforce, national defense, economic vitality and democratic foundation depend on our ability and willingness to get this done.

If we assemble the best minds in policy and practice, implement what we know works, and commit ourselves to the time, effort and resources needed to make monumental changes, we can once again be among the best education systems in the world. If they can do it, so can we. But there's no time to lose."

Lee Posey
Federal Affairs Counsel
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(202) 624-8196

www.ncsl.org

NCSL
National Conference of State Legislatures

No Time to Lose

How to Build a World-Class Education System State by State

AUGUST 2016

NCSL's Study Group on International Comparisons in Education

The National Conference of State Legislatures hosted a plenary session during its 2013 Fall Forum to discuss the results of the Organisation for Economic Co-operation and Development's (OECD) most recent survey of what 15-year-olds in industrialized countries could demonstrate about their knowledge of reading, mathematics and science. This survey is known as the Programme for International Student Assessment (PISA). Upon hearing of the disappointing performance of students in the U.S., officers of NCSL's Standing Committee on Education requested that NCSL launch a legislative study into international comparisons of high-performing education systems. They wanted to study other high-performing countries to learn which policies and practices were in place and what lessons the U.S. and individual states might learn from their success. They also wanted to learn about the consequences for our economy and quality of life if we failed to improve our standing.

A bipartisan group of 28 veteran legislators and legislative staff, along with several partners from the private sector, began an 18-month study in 2014. They focused on the highest performing countries on PISA to discover commonalities across their policies and practices. They met with education leaders from these countries, along with national and international experts who study their systems. They also visited several countries to see the differences firsthand.

This first report explains why there's no time to lose in rebuilding state education systems. However NCSL's study group still has questions—and surely the reader does too—about how to design and implement these systemic changes in the states. Where should legislators begin—teacher recruitment or preparation, standards, assessments, early learning? How should states realign their resources? Do some of these policies fit together better into an actionable package? There is still much to learn and discover.

The study group members will continue to meet through 2017 to find the answers to these and other questions by continuing to study and learn from other successful countries, as well as districts and states here in the U.S. Upon completion of our study, the study group will produce a policy roadmap that states can use to guide their reforms, as well as provide support to states ready to embark on these efforts.

EXECUTIVE SUMMARY

The bad news is most state education systems are falling dangerously behind the world in a number of international comparisons and on our own National Assessment of Educational Progress, leaving the United States overwhelmingly underprepared to succeed in the 21st century economy. The U.S. workforce, widely acknowledged to be the best educated in the world half a century ago, is now among the least well-educated in the world, according to recent studies. At this pace, we will struggle to compete economically against even developing nations, and our children will struggle to find jobs in the global economy.

States have found little success. Recent reforms have underperformed because of silver bullet strategies and piecemeal approaches. Meanwhile, high-performing countries implement policies and practices and build comprehensive systems that look drastically different from ours, leading them to the success that has eluded states. Pockets of improvement in a few districts or states is not enough to retain our country's global competitiveness.

The good news is, by studying these other high-performing systems, we are discovering what seems to work. Common elements are present in nearly every world-class education system, including a strong early education system, a reimagined and professionalized teacher workforce, robust career and technical education programs, and a comprehensive, aligned system of education. These elements are not found in the U.S. in a consistent, well-designed manner as they are found in high performers.

We have the ability to turn things around. Much higher-performing, yet less-developed countries—such as Poland and Singapore—have made significant progress developing their education systems in just a decade or two because they felt a strong sense of urgency. State policymakers, too, can get started right away to turn around our education system by taking immediate steps to:

- Build an Inclusive Team and Set Priorities.
- Study and Learn from Top Performers.
- Create a Shared Statewide Vision.

We are discovering what seems to work. Common elements are present in nearly every world-class education system, including a strong early education system, a reimagined and professionalized teacher workforce, robust career and technical education programs, and a comprehensive, aligned system of education.

- Benchmark Policies.
- Get Started on One Piece.
- Work Through "Messiness."
- Invest the Time.

We must directly face these challenges and begin immediately to reimagine and re-engineer our own education system. We must implement meaningful and comprehensive changes that will produce real results for our students.

State legislators must lead this work. Education is first and foremost a state responsibility. Each state can develop its own strategies for building a modern education system that is globally competitive, similar to the approach taken by other high-performing countries.

But we must begin now. There's no time to lose.

We cannot ignore the reality that most state education systems are falling dangerously behind the world, leaving the United States overwhelmingly underprepared to succeed in the 21st century economy.

The U.S. workforce, widely acknowledged to be the best educated in the world half a century ago, is now among the least well-educated, according to recent studies. At this pace, we will struggle to compete economically even against developing nations, and our children will struggle to find jobs in the global economy.

Despite their efforts, states have found little success because recent reforms have underperformed. Meanwhile, high-performing countries implement policies and practices and build comprehensive systems that look drastically different from ours, leading them to the success that has eluded states. Pockets of improvement in a few districts or states are not enough to retain our country's global competitiveness.

The good news is that we have the ability to turn things around. Much higher-performing, yet less-developed countries—such as Poland and Singapore—have made significant progress developing their education systems in just a decade or two, and most of their innovations came from right here in the U.S.

But we must begin now. There's no time to lose. We must directly face these challenges and begin immediately to reimagine and re-engineer our own education system. We must implement meaningful and comprehensive changes that will produce real results for our students.

Each state can develop its own strategies for building a modern education system that is globally competitive, similar to the approach taken by other high-performing countries. These countries did not copy each other; instead they borrowed and adapted ideas, many from the U.S., and customized their approach for their own unique context.

State legislators must be at the center of this discussion. Education is first and foremost a state responsibility. State legislators represent and can bring together the diverse viewpoints at the state and local levels that must be included in setting a vision and priorities for reforms. States must work together with local entities to design efforts that are practical and appropriate for each individual state. We will not be successful by allowing the federal government to set agendas and priorities.

Building Consensus

The recent reauthorization of the Elementary and Secondary Education Act as the Every Student Succeeds Act (ESSA) moves federal education policy away from the top-down, punitive approach that has been in place since 2002. States now have more flexibility to reimagine their accountability systems, design interventions to improve instruction, and use federal resources to support students and schools in more flexible ways. At the same time, states will continue to have the data needed to monitor the performance of student subgroups, ensuring a focus on a high-quality education for all children.

ESSA provides an opportunity for states to ensure that all students have the knowledge, skills, abilities and behaviors to succeed in college and the workplace so that jobs stay in our states rather than going overseas. These changes represent both an opportunity and a challenge for states, and lessons from high-performing countries offer timely guidelines for states at this opportune time.

HERE ARE STEPS THAT STATES CAN TAKE IMMEDIATELY.

Build an Inclusive Team and Set Priorities. State legislators cannot do this work alone. They must assemble a broad and diverse group that brings state and local policymakers, teachers, principals, superintendents, unions, business, parents and students into an inclusive process to set a vision for reform and identify priorities. State legislators know that it is very difficult to achieve agreement on reimagining and building a 21st century education system. But every person or group cannot get everything they want, so we recommend a different approach to achieving a collective and realistic vision: To build consensus, every stakeholder in the discussion is expected to put on the table a proposition giving them something they never thought they could get, in exchange for giving up something they never thought they would give up. In addition, it is unrealistic to expect that every person, group or interest will be 100 percent in favor of every idea or strategy. So, it might be wise to establish a threshold for support to move forward. For example, the group might adopt a "70 percent rule": An idea or decision is approved if 70 percent of the group is in favor.

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Study and Learn From Top Performers. Every state should embark on a journey similar to that of the NCSL study group—a journey to discover the policies and practices of other high-performing countries. Reconsider much of what you think you know; abandon many ideas to which you have long been committed; and embrace new ideas, many which come from other countries but also those already implemented in many of our states. Study innovations in the states. Look hard at statewide data and be unafraid to compare your own state to other states and countries.

To build consensus, every stakeholder in the discussion is expected to put on the table a proposition giving them something they never thought they could get, in exchange for giving up something they never thought they would give up.

■ FROM THE STUDY GROUP

"Many states have implemented individual education reforms but have not accomplished the results hoped for. One of the most important lessons I have learned during this study is the value of having a well thought out and widely accepted vision that includes the coordination of multiple reforms to produce a world-class education system."

— State Senator John Ford, R-Okla.

Create a Shared Statewide Vision. Developing a shared long-term vision and setting goals to guide the work will be critical to the success of the effort. The vision becomes a guide for policymaking that transcends the shifts in politics or personalities. The vision becomes the North Star that continually guides the work. The journey will not be a short one, but a good roadmap—knowing where to go and developing the way there—means that policymakers will ultimately arrive at the desired destination.

Benchmark Policies. After establishing a shared vision, the state should consider benchmarking its education policies, practices and outcomes against those of high-performing countries and high-performing states. This helps to identify specific policies and implementation strategies for necessary shifts in policy and practice. An ongoing benchmarking process also allows the state to continually monitor its results.

Get Started on One Piece. After creating a comprehensive strategic plan, states should get started right away on a priority area of reform. Building a cohesive system does not mean states should wait to implement all pieces together, but rather understand and emphasize the connectedness of policy pieces. We urge states to move forward now to design and implement priority reform strategies, such as early literacy, teacher preparation, or college and career pathways. Identify an important early success that supports the state vision and the strategic plan, and use the success as momentum for continuous improvement.

Work Through "Messiness." In both high-performing countries and in successful reform efforts here in the U.S., the process of designing system-wide reform is always difficult and messy. There is no one recipe for success. The top performers took at least one step backward for every two steps forward, but continued to keep their eye on the goal to stay the course.

Invest the Time. States embarking on this process will find that they cannot tackle everything at once and will need to prioritize their work. We urge states to define these priorities as part of an inclusive process that first identifies a statewide vision and ensures that individual strategies are all needed parts for achieving statewide goals. States will begin this process at different places and will design different pathways. Achieving system-wide change will take time and will begin and end in different places in different states.

State policymakers can take these first action steps to quickly begin to move their states from mediocrity to excellence.

But first policymakers must face and understand the facts—the unfortunate state of our current education system. Then policymakers must understand the common elements found in world-class education systems.

Facing Facts: U.S. Students and Workers Struggle

POOR SCORES ON PISA

In 2000, the Organisation for Economic Co-operation and Development (OECD) embarked on its first international comparative study of what a sample of 15-year-olds can demonstrate about their knowledge in key areas including math, reading and science. [1] This assessment is known as the Programme

After all of the national, state and district reform efforts during the decade following No Child Left Behind, the U.S. was outperformed not only by a majority of the advanced industrial nations, but by a growing number of less-developed nations as well.

U.S. RANKING ON PISA

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SOURCE: NATIONAL CENTER ON EDUCATION AND THE ECONOMY, CENTER ON INTERNATIONAL EDUCATION BENCHMARKING, 2013

■ FROM THE STUDY GROUP

"It's easy to say that the U.S. isn't Singapore or Finland so there's not much to learn from them. Well, 30 years ago, even Finland wasn't Finland. And some of the things they did such as improving teacher preparation is clearly something we can do irrespective of culture, homogeneity, diversity and so on."

— State Representative Roy Takumi, D-Hawaii

for International Student Assessment (PISA). Research has proven that a strong education system contributes directly to a strong economy. Understanding how strong education systems in industrialized countries are designed can help us uncover how they contribute to economic success and improve their citizens' quality of life.

In the first study, 32 highly-industrialized member countries participated. The U.S. ranked a disappointing 15th in reading, 19th in mathematics and 14th in science—right about in the middle of the countries surveyed. The initial results emboldened some U.S. policymakers to call for reforms, such as more testing and accountability and minimum qualifications for teachers. At the same time, the federal No Child Left Behind (NCLB) Act was enacted.

When the fifth survey was administered in 2012, the number of countries in the survey had grown to 65, and included less-developed countries. The news was worse for the U.S., which placed 24th in reading, 36th in mathematics and 28th in science. Again, our standing was in the middle of the countries surveyed. After all of the national, state and district reform efforts during the decade following NCLB, the U.S. was outperformed not only by a majority of the advanced industrial nations, but by a growing number of less-developed nations as well. [2]

POOR SCORES ON PIAAC

The OECD also administers another survey called the Survey of Adult Skills, which is part of its Programme for the International Assessment of Adult Competencies (PIAAC). It surveys adults ages 16 to 65 in numeracy, literacy and problem-solving. The results from the most recent survey, conducted in 33 nations, were released in 2013.

The Educational Testing Service (ETS) did a special analysis of the 2013 PIAAC data on millennials—those in the workforce ranging in age from teens to early 30s. They argued that this generation "will largely determine the shape of the American economic and social landscape of the future." ETS found that only the millennials in Spain and Italy scored lower on the PIAAC survey in reading than millennials in the U.S. In numeracy, U.S. millennials tied for last with Italy and Spain. In problem-solving, U.S. millennials again came in last among the 33 nations.

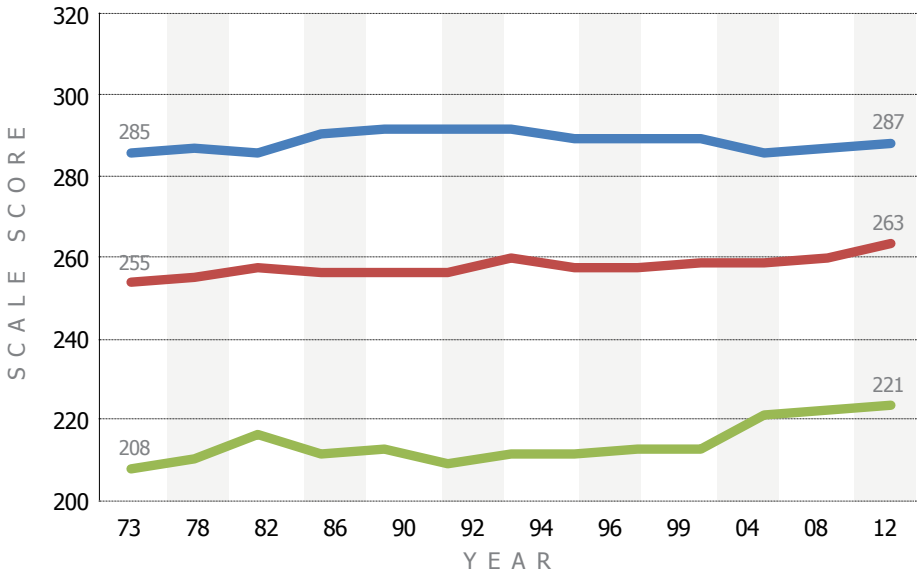
POOR PERFORMANCE ON OUR "NATION'S REPORT CARD"

Not only are U.S. students struggling to compete globally, they also struggle to meet the relatively low expectations set for students through our own "Nation's Report Card," or the National Assessment of Educational Progress (NAEP). For the four decades this assessment has been administered to students

LONG-TERM NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (NAEP) SCORES

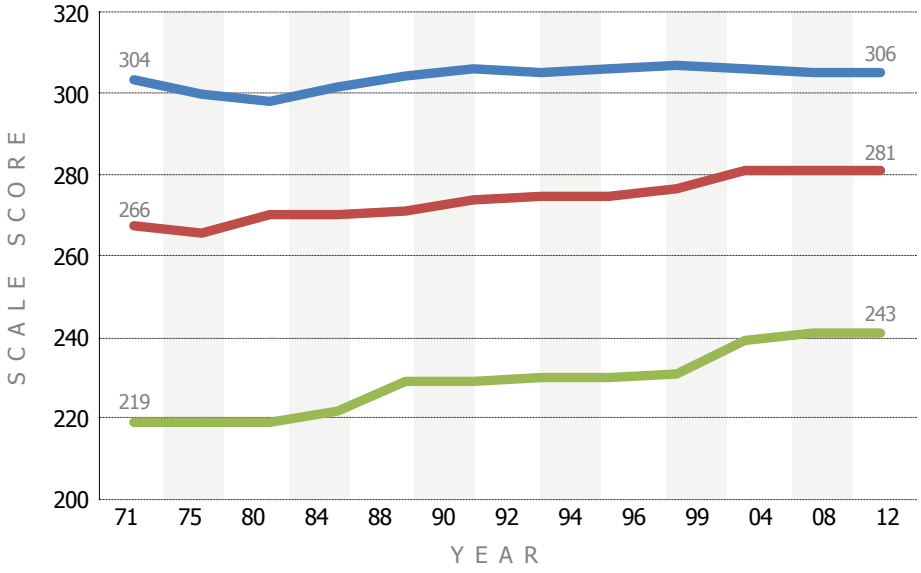
Over the past four decades, high school students in the U.S. have made little progress according to the "Nation's Report Card," administered by the NAEP.

READING



MATHEMATICS

Ages: 17 13 9



Source: National Center for Education Statistics (2012). Trends in Academic Progress

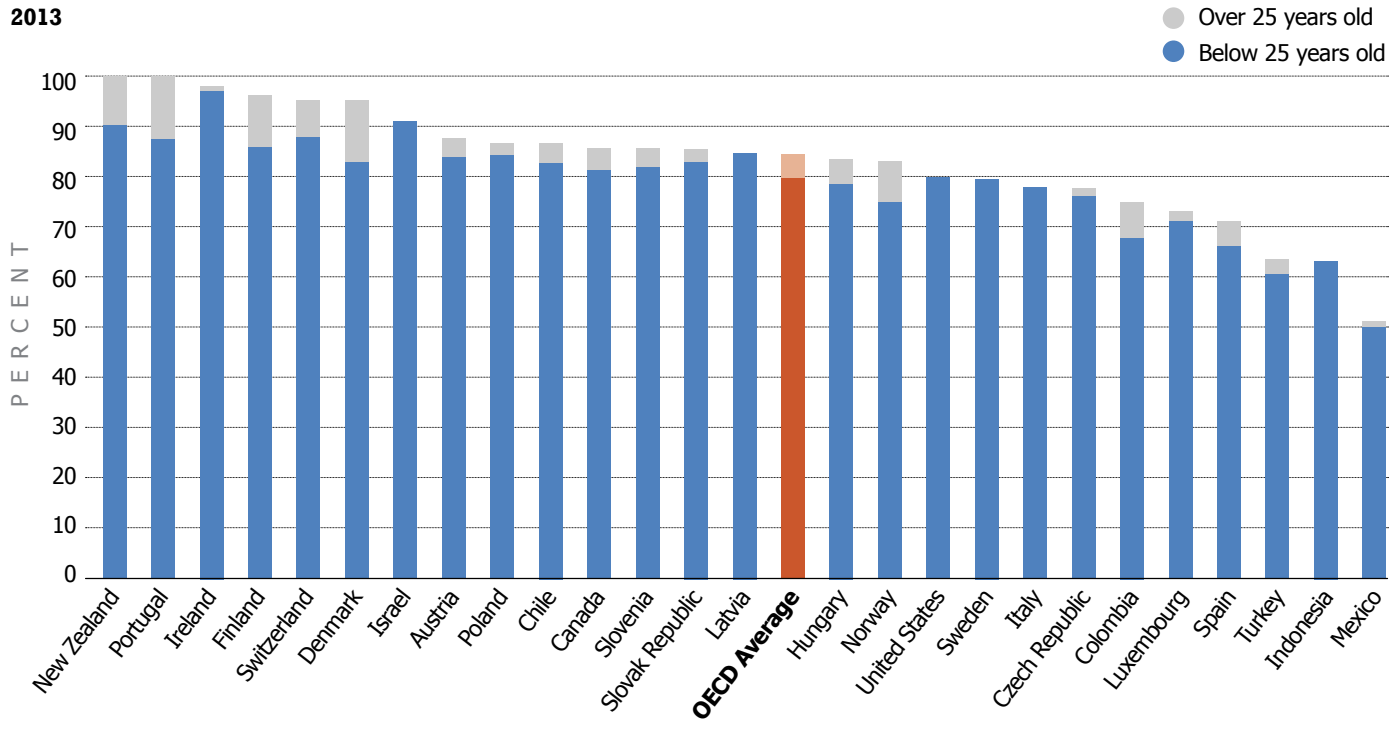
across the country, high school students have made little improvement.

INTERNATIONAL COMPARISONS ARE VALID

When these survey results were first released in the 2000s, many countries enacted sweeping changes to improve their education systems and drive economic development. They realized that they needed to turn their education systems around to compete in a global economy. Some in the U.S., however, explained away the results by criticizing the PISA and PIAAC methodology, denied that education results in other countries could be compared to those in this country, or argued that

UPPER SECONDARY GRADUATION RATES, 2013

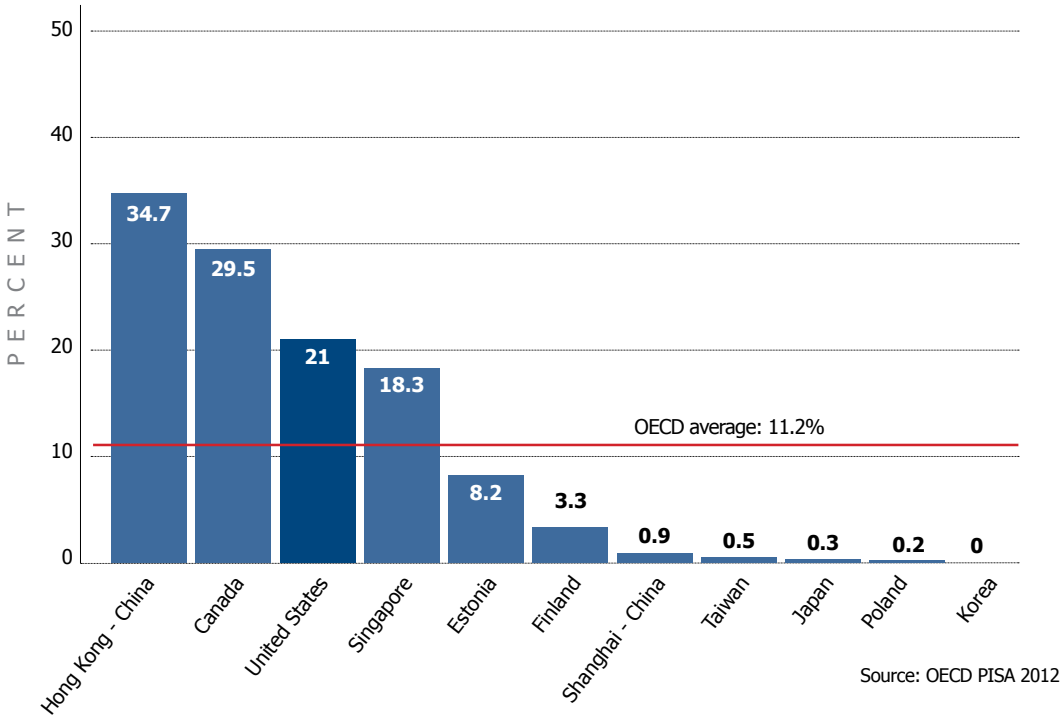
The OECD reports that the U.S. graduation rate is 80 percent, lower than most other high-performing countries. This dispels the assertion that other high-performing countries educate only their elite.



Source: OECD (2015), Education at a Glance 2015: OECD Indicators, OECD Publishing. http://dx.doi.org/10.1787/eag-2015-en, p. 48

PERCENT OF STUDENTS WHO ARE IMMIGRANTS

Europe and Asia have experienced an upsurge in immigration over the past several decades, and Asian countries have significant cultural, linguistic, ethnic and religious diversity.



Source: OECD PISA 2012

ELEMENTS OF A WORLD-CLASS EDUCATION SYSTEM

Children come to school ready to learn, and extra support is given to struggling students so that all have the opportunity to achieve high standards.

- Necessary resources ensure that all children enter the first grade with the cognitive and non-cognitive skills needed to master a first-grade curriculum set to high standards.
- Once students are in school, resources are distributed so that students who may find it harder to meet high standards will be given the extra resources—especially highly effective teachers—they need to succeed.

A world-class teaching profession supports a world-class instructional system, where every student has access to highly effective teachers and is expected to succeed.

- The highly professional teaching force is well-prepared, well-compensated and well-supported throughout their careers.
- Teachers support a well-designed instruction system that includes high standards for learning, a core curriculum created by world-class teachers, and high-quality assessments designed to measure complex skills demanded by the standards and curriculum.
- All students are expected to be ready for college and career, and all educators are expected to get them there.

A highly effective, intellectually rigorous system of career and technical education is available to those preferring an applied education.

- A powerful, hands-on applied curriculum is built, requiring strong academic skills.
- The system has no "dead ends," and pathways to university are clear and always available.
- Schools partner with employers to ensure that high standards are set for the students and provide on-the-job training and learning opportunities to enable them to reach those standards.

Individual reforms are connected and aligned as parts of a clearly planned and carefully designed comprehensive system.

- All policies and practices are developed to support the larger education system.
- The coherent system of education is designed to ensure that every student meets the same goal of college and career readiness.

international comparisons are irrelevant. This criticism continues even today as the United States falls further and further behind.

The NCSL study group's conclusions were very different. They found that U.S. students' poor performance cannot easily be explained away. For example, critics assert that the U.S. educates all students while the other high-performing countries educate only their elite. But graduation rates dispel this assertion. The OECD reports that the U.S. graduation rate is 80 percent, lower than most other high-performing countries.

Critics also assert that the U.S. is more diverse than other countries and, as a result, faces challenges that others do not. This may have been true in the past, but it is not the case today. Both Europe and Asia have experienced an upsurge in immigration over the past several decades. The same is true of Canada. A greater proportion of Canadian students was born outside Canada than the proportion of U.S. students born outside the U.S. Furthermore, Asian countries have significantly more cultural, linguistic, ethnic and religious diversity than many Americans often suppose. For example, Singapore has three main ethnic groups (Chinese, Malay and Indian), four national languages (Mandarin, Malay, Tamil and English) and a host of major religions, including Buddhism, Islam, Christianity, Hinduism, Sikhism, Taoism and Confucianism.

Facing Facts: U.S. Policymakers Struggle to Find Silver Bullet

Over the past several decades, policymakers in the U.S. have worried about flat test scores and fledgling international competitiveness. In an effort to boost achievement for all students, policymakers have tried a number of approaches and passed a number of state and federal laws. These have included increasing funding, reducing class size, enhancing school choice, improving school technology and teacher quality, more testing and tougher test-based accountability. While some policies have had marginal success in some states or districts, success has not been as widespread as policymakers had hoped.

■ FROM THE STUDY GROUP

"Every championship team, no matter what sport, knows the fundamentals of the game and practices those relentlessly. I believe we have identified the fundamentals of education that are necessary to succeed in preparing our children to be internationally competitive in today's changing economy. It is imperative that we acknowledge and adopt those fundamentals if we are to be champions in education again."

— State Senator Luther Olsen, R-Wisc.

The only policy approach developed by both U.S. states and top-performing countries is high academic standards. But all of the top-performing countries have coupled developing such standards with a curriculum framework, specific curriculum and well-aligned, high-quality, essay-based assessments in seamless instructional systems. Most states have yet to move in this direction, and implementation of rigorous standards has been haphazard at best.

In retrospect, the NCSL study group concludes that states have tried to find individual "silver bullets" without setting decisive goals and creating a thoughtful, systemic approach to building a coherent system with an appropriate timeline for implementation, as did the other high-performing countries. Examples of states' piecemeal approaches include:

- Increasing teacher pay without demanding better preparation
- Improving early education without continuing supports for struggling students in K-12
- Increasing funding without first shifting funds from unproven strategies
- Decreasing class size without first restructuring staffing and time
- Using test scores in teacher evaluations without ensuring that all teachers are receiving job-embedded, high-quality, ongoing learning

This "silver bullet" approach is not what the study group found in high-performing countries. They do not look to single policy shifts to improve student outcomes. Instead, they have created a coherent system of education within which all policies and practices are designed to lead to high performance.

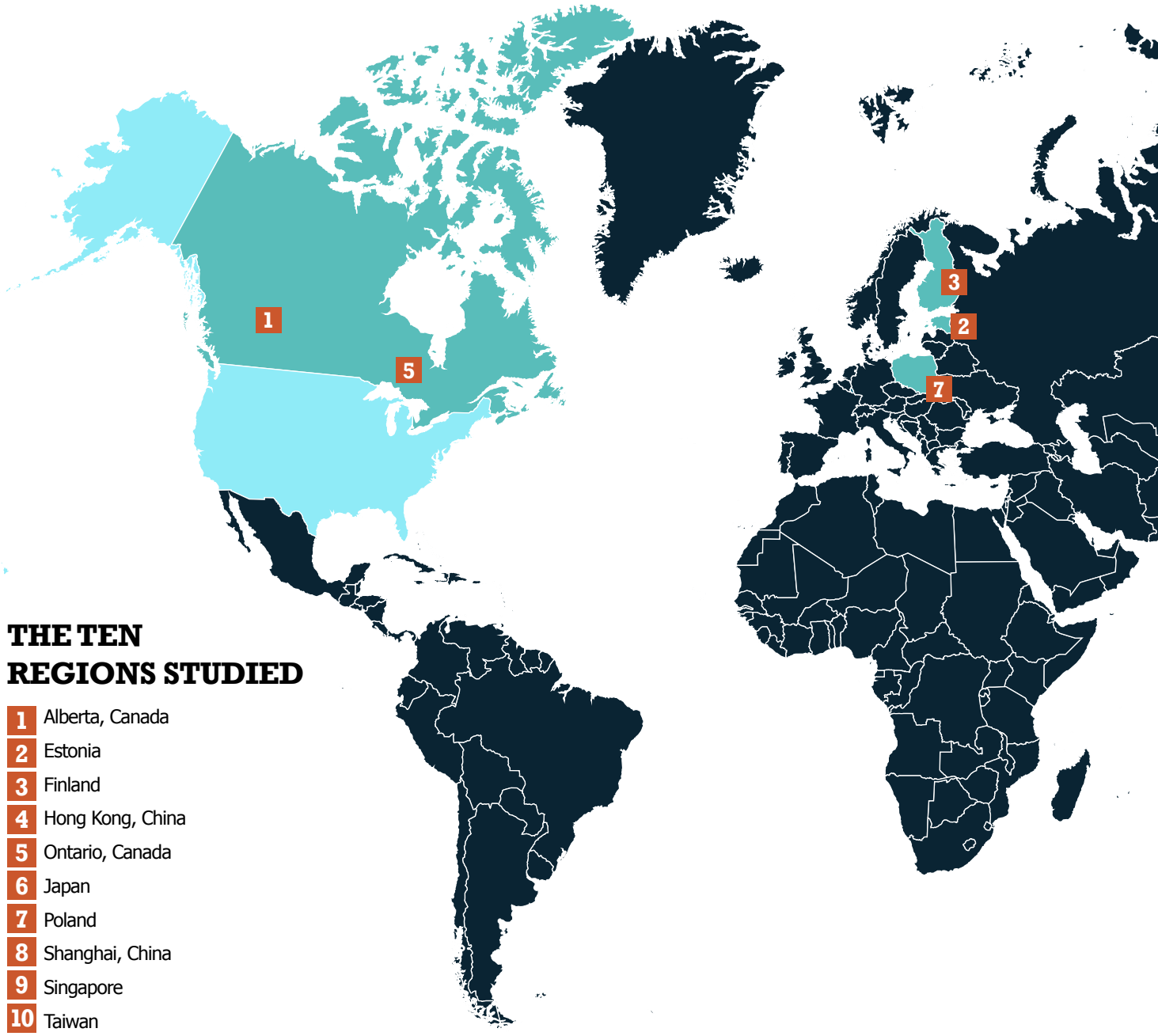
TOP PERFORMERS: HOW THEY BECAME THE BEST IN THE WORLD

As NCSL's study group talked with experts from around the world and visited several top-performing countries, they confirmed what others had found—there are common elements that make up the design of world-class education systems. These elements are widely credited for their rapid rise in student achievement.

Element #1: Children come to school ready to learn, and extra support is given to struggling students so that all have the opportunity to achieve high standards.

The top-performing countries ensure that children arrive at school ready to learn. The responsibility for this varies among the countries. For example, in high-performing countries with a large proportion of women in the workforce, the government typically provides support to families with young children. In other countries, however, the responsibility falls on families—often extended families—and the community.

Once students in top-performing countries are in school, those who struggle receive extra help … More teachers are typically allocated to such schools, with the best teachers serving in the most challenged ones. Inversely, American students from the wealthiest communities are most likely to get the best teachers and the finest facilities.



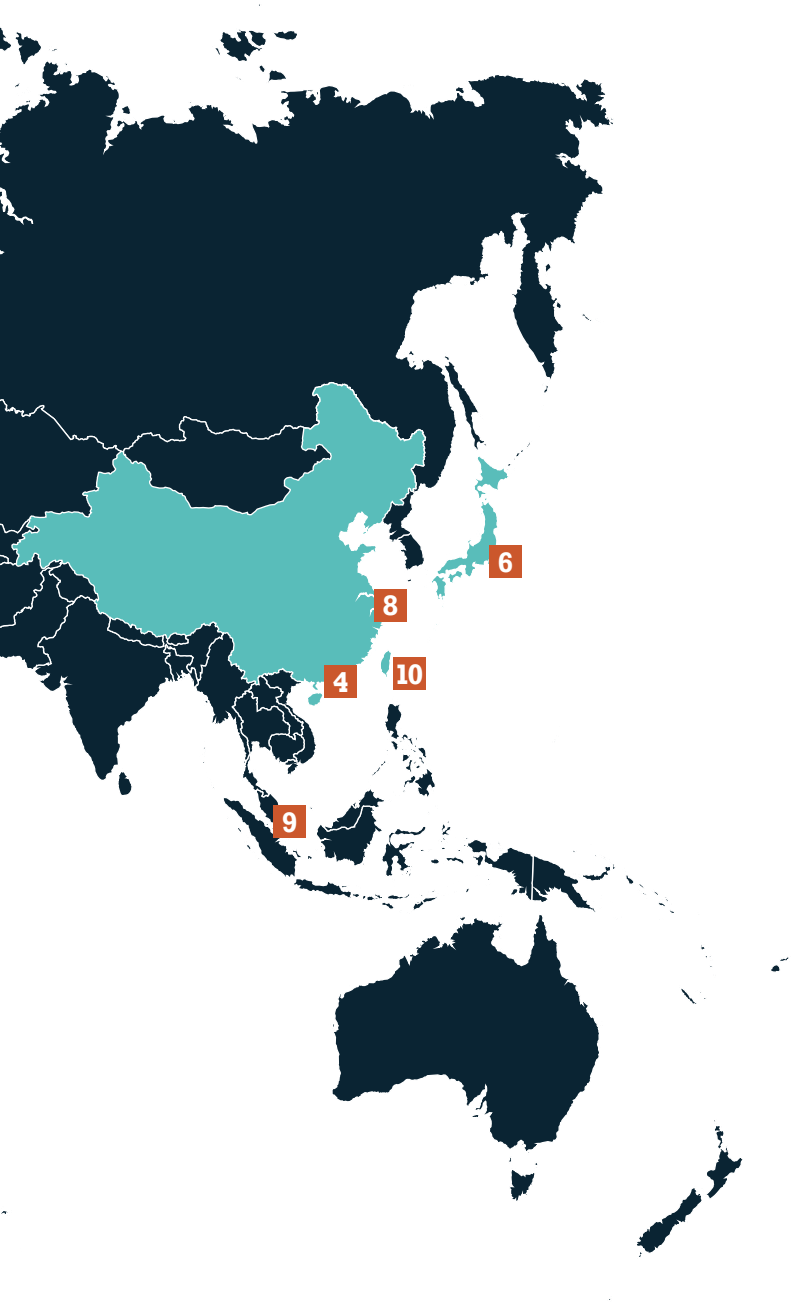
THE TEN REGIONS STUDIED

1. Alberta, Canada
2. Estonia
3. Finland
4. Hong Kong, China
5. Ontario, Canada
6. Japan
7. Poland
8. Shanghai, China
9. Singapore
10. Taiwan

In both situations, society places a high priority on making sure that children are in good health and prepared to learn. In most cases, if the families cannot or will not provide these supports to children, then society steps in. These supports often continue after children begin school.

In the United States, children in poverty now account for about a quarter of all children in public schools. Large numbers of American children enter first grade with disadvantages that may overwhelm the school's capacity to provide an adequate education. Because high-performing countries provide supports to ensure that children are ready for school, their schools typically do not face similar challenges.[5]

Once students in top-performing countries are in school, those who struggle receive extra help to reach the same high standards other students will reach more easily. Providing additional resources to schools serving dis-



advantaged, struggling students is a priority. More teachers are typically allocated to such schools, with the best teachers serving in the most challenged ones. Resources are also reallocated within schools to reach those most in need of extra support. These countries demonstrate that, with added support, struggling students can meet high expectations. Inversely, American students from the wealthiest communities are most likely to get the best teachers and the finest facilities because of the way we structure our finance systems.

Once teachers exit a preparation program in top-performing countries, they are expected to be the best in the world and experts in their craft. American programs typically have lower standards for entrance and exit, overproduce elementary education teachers, and struggle to produce teachers in high-demand fields, such as special education and science, technology, engineering and math.

Element #2: A world-class teaching profession supports a world-class instructional system, where every student has access to highly effective teachers and is expected to succeed.

When the top performers committed to bringing all students to achievement levels formerly reached only by their elites, they also committed to providing all students with access to high-quality teachers. They raised the rigor, expectations, structure and status of the teaching profession and compensated those who were willing to meet the challenge of this reimagined career path.

These goals led the top-performing countries to adopt a different set of tightly linked policies and practices than those enacted in the U.S. While some of these approaches have been tried here, no comprehensive set of policies and practices that raise the teaching profession to the heights seen in high-performing countries has been adopted across any state.

■ **Selective Recruitment.** The top-performing countries have a rigorous set of criteria for determining a candidate's eligibility for teacher preparation, including an entrance exam that few pass. Often teacher candidates are recruited from the top quarter of high school graduates. This is not a typical practice in the U.S.

In high-performing countries, teachers are compensated more generously than American teachers, typically earning pay similar to that of senior civil servants and professionals such as engineers and accountants. They are expected to be the best in the world and are compensated accordingly.

■ **Rigorous Preparation and Licensure.** Most teacher preparation programs in top-performing countries are based in prestigious research universities that are more selective and rigorous than U.S. programs. Teaching programs know and produce the number and types of teachers needed to fill vacancies each year, so admission is quite competitive. Programs require mastery of subjects to be taught and often include clinical practice that can take significantly longer to complete than teacher induction programs in the U.S. There are no approved alternative routes to licensure like those in the states, which enable professionals to become teachers with only a few weeks or months of training.

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■ **Thorough Induction.** Either during preparation or upon entering the teaching workforce, new teachers in high-performing countries are expected to serve apprenticeships with officially designated, well-trained master teachers. During the first year of this induction, beginning teachers typically have a greatly reduced workload. Teachers must complete the induction before they receive what we would call "tenure." While induction and mentoring policies have been enacted in many states, these programs often lack quality, rigor and authenticity in implementation.

■ FROM THE STUDY GROUP

"In several of the countries studied, teaching is regarded as an honorable and respected profession, comparable to medicine and law, and not a burden on the local property tax."

— State Representative Mary Stuart Gile, D-N.H.

■ **Career Ladders or Lattices.** High-performing countries create a variety of roles for teachers in the schools so they can use their expertise to improve teaching and learning and, at the same time, offer an exciting career in education. These may include leadership roles that offer experienced teachers incentives to remain in the profession, hone and receive rewards for their unique skills, and better support students and colleagues.

■ **Professional Work Environment.** High-performing countries have redesigned their schools and the overall work environment to maximize the success of teachers and students. For example, teachers are given a lighter teaching load and more time for their own—and their colleagues'—development. In some of these countries, 30 percent to 35 percent of a teacher's time is spent teaching students, while the rest is spent on activities such as working in teams with other teachers to develop and improve lessons, observing and critiquing classes, and working with struggling students.[6] Teacher evaluation, promotion and pay takes into consideration teachers' performance in teams and their progress as they become experts in their craft.

Schools and classrooms are organized differently so that several teachers, perhaps even a group, have responsibility for a classroom. When not working directly with students, teachers are rewriting curriculum and assessments to meet the needs of their students and to meet high student performance expectations. Teachers also counsel and train each other, constantly observing, evaluating and improving their practices. Because they are trained to be experts at their craft, teachers push themselves, their colleagues and their students to be the best in the world. This highly professional work environment is uncommon in the U.S.

NCSL study group members watch students work together during a math lesson in a Shanghai elementary school.

■ **High-Quality Professional School Leaders.** In high-performing countries, the school leader is highly trained and carefully selected. In Singapore, for example, only teachers who have been trained in its highly rigorous system and have already served in a variety of school settings can become principals. Principals receive training in curriculum, instruction and school administration. School leaders interact regularly and in great depth with their teachers. In the U.S., although it is understood that great schools require great leaders, recruitment, selection and training systems that foster such leadership have not been uniformly developed.

■ **Higher Compensation.** In high-performing countries, teachers are compensated more generously than American teachers, typically earning pay similar to that of senior civil servants and professionals such as engineers and accountants. They are expected to be the best in the world and are compensated accordingly. Many nations view their teachers as "nation builders," preparing the country's next generation. Some countries have variable pay scales tied to career ladders or lattices that acknowledge the various teaching roles, leadership responsibilities and subject mastery. These countries have managed to increase pay by reallocating resources from policies and practices they found to be less effective.

■ FROM THE STUDY GROUP

"High-performing countries have consciously decided to prioritize education over testing."

— State Senator Joyce Elliott, D-Ark.

■ **World-Class Instructional Systems.** To guide and support effective teaching and learning, all of the top-performing countries have developed internationally benchmarked standards that specify what students should know and be able to do in language arts, mathematics, science and all required subjects in the curriculum. Increasingly, these include both high-level complex cognitive skills and non-cognitive skills, such as ethical behavior, framing and completing tasks, teamwork and leadership. Top performers develop curriculum frameworks based on these high standards and specify the order in which concepts should be taught, either by grade or grade span, thereby creating a clear path to student mastery. Corresponding course syl-

labi specify learning objectives, topics to be covered, materials to be used, appropriate assessments, and papers and projects to be completed. They do not include lesson plans because teachers are expected to develop them guided by the syllabi and curriculum framework. Policymakers in these countries assume that if the teachers know the desired outcomes, they are skilled enough to prepare lessons that will enable their students to master that material.

The top performers also prepare assessments that are designed to find out whether students have mastered material in the syllabi. Because the syllabi specify high-level complex skills, the assessments typically contain few multiple-choice, computer-scored prompts, since that type of assessment does not effectively measure high-level skills. These assessments are typically essay-based and scored by humans, so the high-performing countries spend more than states on assessments. They are not administered annually, however, but instead at key transition points in a student's academic career. Similar to teacher pay, these countries prioritize this investment as a small fraction of the total cost of their education system, knowing that cheaper, less effective, less rigorous assessments will not lead to world-class teaching or high student achievement.

Career and technical education (CTE) is not perceived as a route for students lacking strong academic skills, but as another approach to education, skills development and good jobs. CTE is well-funded, academically challenging and aligned with real workforce needs.

Element #3: A highly effective, intellectually rigorous system of career and technical education is available to those preferring an applied education.

Interest in career and technical education (CTE) is emerging in many top-performing countries as a strategy to boost the national economy and offer a high standard of living and attractive careers to a broader constituency. Singapore and Switzerland, in particular, have built strong systems of CTE with close ties to industry. Singapore uses a school-based model and Switzerland uses an employer-based model.[7] In these countries, CTE is not perceived as a route for students lacking strong academic skills, but as another approach to education, skills development and good jobs. CTE is well funded, academically challenging and aligned with real workforce needs. It is hands-on, attractive to students and parents, and can lead to university for students who may seek professional and managerial positions later. For other students, CTE is a pathway to good jobs, by building technical skills that can be achieved much earlier than the traditional academic experience.

On the other hand, the U.S. has experienced a steady decline in CTE over the last few decades. This has become a challenge for American employers struggling to find skilled workers and for students desiring an applied education or a streamlined entrance into the workforce. Although a number of states have impressive CTE schools or particular programs, very few have an entire CTE system that provides the kind and quality of opportunities available to students in top-performing systems. Community colleges are particularly well positioned in the states to link workforce needs to credentials and certificates.

Element #4: Individual reforms are connected and aligned as parts of a clearly planned and carefully designed comprehensive system.

Top performing countries have adopted a comprehensive, systemic approach to building world-class education systems. They understand that success is not achieved by adopting only one or two "silver bullet" policies; instead, these countries have reimagined and re-engineered their entire systems. Typically, this vision is established at the national level with the ministry of education, while states or provinces are charged with implementation. This is not dissimilar to how states can enact reform: with a clear vision at the state level, while local entities are responsible for implementation.

For example, the top-performing countries

Success is not achieved by adopting only one or two "silver bullet" policies ... Top-performing countries understand that schools will struggle without high-quality early childhood education and that high-quality early childhood education will not be a wise investment unless followed by high-quality instruction in the schools. They also understand that increasing teacher pay without rethinking the pool of teaching applicants may be unwise unless preparation programs are more rigorous. Likewise, they realize that a more rigorous program is pointless without creating a more attractive teaching profession.

understand that schools will struggle without high-quality early childhood education and that high-quality early childhood education will not be a wise investment unless followed by high-quality instruction in the schools. They also understand that increasing teacher pay without rethinking the pool of teaching applicants may be unwise unless preparation programs are more rigorous. Likewise, they realize that a more rigorous program is pointless without creating a more attractive teaching profession.

Unlike top-performing countries, states commonly take a piecemeal approach, where policymakers fail to set overarching goals for the education system and instead experiment with individual strategies that can sometimes change from year to year. States have designed and implemented many different education reform policies that are not always connected and consequently do not have the desired impact.

Clearly, a decentralized system of education governance exists and is traditionally preferred in the U.S., where state and local boards, agencies, governors and legislatures all control and often set differing priorities for their own systems. Parents, teachers and students are frustrated with reform efforts that come and go, leaving them with a system built on an ever-shifting foundation.

States are well-positioned to instead create the kind of clear vision and systemic reform that high-performing countries do. State systems more closely resemble education governance in the high-performing countries. With input from stakeholders, state legislatures, state boards of education, governors and state education agencies can agree to a clear vision for the state and allow local entities to implement specific strategies.

An Urgent Call to Action: It's Up To States

As state legislators, it is our responsibility to provide our citizens with a world-class education. We cannot let another generation settle for anything less. Our future workforce, national defense, economic vitality and democratic foundation depend on our ability and willingness to get this done.

If we assemble the best minds in policy and practice, implement what we know works, and commit ourselves to the time, effort and resources needed to make monumental changes, we can once again be among the best education systems in the world. If they can do it, so can we. But there's no time to lose.

Profiles: A Closer Look at Three High-Performing Education Systems

FINLAND

People everywhere have heard about Finland—this Scandinavian country of 5.3 million is a world leader in education. It is easy to suggest that any small country can achieve outstanding results, but the Finland story and experience are much more than that. Finland's strong system was built from the ground up in the 1970s as leaders viewed outstanding education as the ticket to a strong economy and international competitiveness.

Visitors to Finland often talk about the beautiful school buildings. Inside the classroom, you rarely find teachers lecturing to students in rows of desks. Rather, Finland prides itself on self-directed students. Students take charge of their learning activities—by consulting with teachers and developing a specific lesson plan that may involve individual work and group work. Finland's schools are devoted to being full service, meaning they offer student and family health services, counseling, transportation and meals.

The three-tiered system features early education (ages 1-7), comprehensive schools (ages 7-16) and senior secondary schools (ages 16-19). At that point students move either to the university or to vocational schools and apprenticeship training.

Schools are small with small classes (about 20 students per class). There is a national core curriculum that lays out what students are expected to learn and be able to do and the topics that should be taught at each grade level, but teachers have wide flexibility to design lessons and assessments.

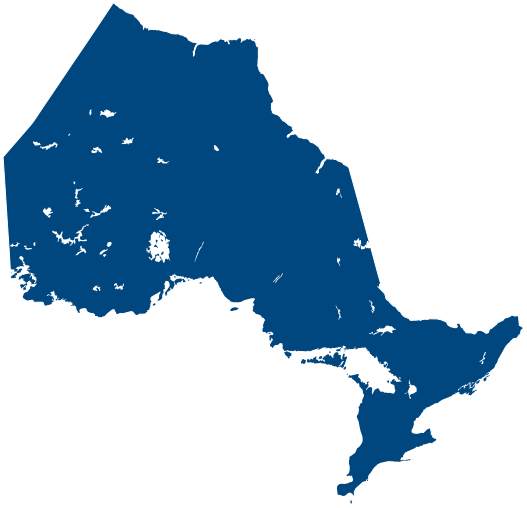
The hallmark of Finland's system is its exceptional teachers. Many scholars look to the investment in teacher education as the MOST important factor in Finland's success. Only 10 percent of those who apply are admitted into teacher education. The preparation program is a five-year, combined bachelor's and master's degree program and is free with a stipend for living expenses. Students learn both teaching and research skills. There is an emphasis on using research-based, state-of-the-art practices and including clinical experiences in a school associated with a university over the five year program. All teachers hold a master's degrees in education with a minor in two content areas in which they will teach. Schools provide time for regular collaboration among teachers—at least one afternoon each week—and opportunities for ongoing professional development.

There is a national core curriculum in Finland, but no national test or other method for monitoring school performance. There is a national matriculation exam at the end of upper secondary school, but the function is to assess what the student knows, not the quality of the school. Teachers have much autonomy in their everyday work. Finnish scholar Pasi Sahlberg refers to this as "balanced centralization and decentralization." The Finns suggest that this system provides for maximum innovation and creativity at the school level and allows for teachers to be accountable for overall school performance. There is no mechanism for using student tests to measure individual school performance; however, Finland does have a schools' "inspectorate" who regularly visits schools and provides feedback to help them improve.

Over the years, Finland has become a more diverse country as immigration has increased. More than 99 percent of students successfully complete compulsory basic education and about 90 percent complete upper secondary school.

Finland prides itself on providing equity of opportunity to learn and inclusion. Resources are directed to the most high-need students and schools. Students with special needs are often mainstreamed in regular classrooms but receive significant additional support. Ninety-eight percent of the cost of education is covered by government.

ONTARIO



Canada has been a strong performer in the world education arena since 2000, and Ontario in particular is known for its educational gains. Ontario is Canada's second largest province—larger than France and Spain combined—with a very large system, educating about 40 percent of the country's 5 million students. Ontario has nearly 5,000 schools, with an average size of about 415 students. Average class size is 22. Ontario has a very diverse student population as Canada's immigration rate is among the highest in the world. About one-fourth of Ontario students were born outside Canada. As a result, Ontario's hallmark is its strong appreciation of the diversity of its students and devotion to and value of immigrant children. Students learn about diverse histories, cultures and perspectives in order to build tolerance.

In addition, a centerpiece of Ontario's strategy has been capacity. Regional teams of education leaders with significant experience in teaching, leadership and coaching work in partnership with schools and districts to support improvement within diverse contexts. Under-performing schools and students are constantly targeted for additional supports. There is a strategy for identifying potential dropouts early and providing them with additional support to succeed. Teams of teachers and counselors work together to provide initial support and track progress. Special attention devoted to at-risk students and specialized teachers helped raise the high school graduation rate from 68 percent to 82 percent.

Ontario also promotes parent engagement by actively seeking parents to help and advise schools. Ontario promotes healthy schools with a standard 20 minutes of moderate to vigorous physical activity each day. It also promotes safe schools. A continuum of interventions, support and consequences work to reinforce positive behavior for students to make good choices.

Ontario provides full-day kindergarten for 4-year-olds and 5-year-olds to establish a strong foundation and a smooth transition to the first grade. Students begin in grade seven to think about career development and pathways.

There is no federal education ministry. Each of the provinces (and three territorial governments) is responsible for developing curriculum and determining major education policies and initiatives. Teacher certification is governed by the Ontario College of Teachers. Teachers must have completed at least a three-year postsecondary degree in a content area and then apply to and complete one year of a teacher education program to be certified to teach. There is a culture at the school level of teachers as innovators. Ontario values teachers being risk takers to identify new and promising practices and foster creativity and responsibility. Teachers also use evidence at all levels to inform strategies and actions and participate in collaborative learning teams.

SINGAPORE

Singapore is a very young country and had the advantage of designing an education system from scratch 50 years ago. Singapore split from the United Kingdom in 1963 and became part of Malaysia, and two years later became its own sovereign city-state. Singapore's founding leaders saw people as its most important resource and understood that education was the answer to political and economic survival. Visitors to Singapore remark about its cleanliness and the beautiful gardens—all strategically planned to make people happy. Although it is a city-state with a population of 5.4 million, it is comparable in size to several of our own states.

The center of Singapore's education success is its high-quality educators. Teachers are valued at a level on par with doctors and lawyers. There is only one teacher preparation institute—the National Institute of Education (NIE)—which is housed at a research university. The NIE works closely with the Ministry of Education so that state policy and practice are tightly linked. Prospective teachers are recruited from the top 30 percent of the secondary school graduating class by panels that include current principals. The NIE receives an average of eight applications for every opening. Students accepted receive free tuition and a monthly allowance. New teachers are observed and coached and given ongoing professional development as part of a required and heavily structured induction program.

Once teachers begin their career, they are allotted 100 hours of professional development (largely school-based) per year so they can constantly improve their practice. Every school has a fund to support teacher growth that may include opportunities to study abroad to learn about various aspects of education in other countries. Peer-to-peer learning also is promoted through teacher networks and professional learning communities.

Teacher performance is appraised annually against 16 competencies, which include contribution to students' academic and character development, collaboration with parents and community groups, and contribution to colleagues and the school as a whole. After three years of teaching, they are assessed annually to see which of three career paths—master teacher, curriculum or research specialist, or school leader—would best suit them.

Schools are large, but teachers are regularly engaged with each other through classroom observations, collaborative professional development, and group lesson planning. The principal, who is always a former teacher, is actively engaged in both school management and teaching.

In addition to a Primary School Leaving Exam that must be passed before a student moves into lower secondary school, students take a high-stakes test at the end of secondary school. Students and parents are well aware of the importance of the test, which tracks students into the career/technical pathway or the university pathway. Career/technical students in Singapore are not viewed as second-class citizens; rather, the schools are highly modern and advanced with a devoted faculty and work closely with industry in designing specific high-quality programs.

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Study Group Meetings

Overview of International Education Comparisons
September 3-6, 2014 | Boston, MA

Introduction to PISA and Researching International Education Systems
October 2, 2014 | Webinar

Preliminary Findings and Reflections From Members' Own Benchmarking Research
December 12-13, 2014 | Washington, DC

Accountability Systems of High Performing Countries
February 23, 2015 | Webinar

Getting the Right Incentives: Designing a Coherent, Highly Functioning Education System
April 17-19, 2015 | Chicago, IL

Evaluating State Policies on the 9 Building Blocks of a World-Class State Education System
May 29, 2015 | Webinar

Implementing and Communicating System-Wide Reform in Top Performing Jurisdictions
July 8-9, 2015 | Park City, UT

Current State Examples of System-Wide Reform: Kentucky and Delaware
August 2-3, 2015 | Seattle, WA

A Teacher's View on International Comparisons and Communications Strategies for Study Group Recommendation
December 11-12, 2015 | Washington, D.C.

Experts Consulted

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Ali Wright, Mathematics High School Teacher, Kentucky

Minxuan Zhang, Professor and Director of Research, Institute of Comparative Education, Shanghai Normal University

Readings and Data Sources

OVERVIEW OF INTERNATIONAL COMPARISONS

- OECD (2011). *Lessons from PISA for the United States: Strong Performers and Successful Reformers in Education*. OECD Publishing, http://www.oecd.org/pisa/46623978.pdf. Combining a description of the practices and policies of the top performing countries with a quantitative analysis of PISA data, this report presents lessons for U.S. policy makers.
- Tucker, ed. (2011). *Surpassing Shanghai: An Agenda for American Education Built on the World's Leading Education Systems*. Harvard Education Press. This book explores five high-performing education systems, including Shanghai, Japan, Singapore, Canada and Hong Kong, and presents recommendations for U.S. policymakers.

CANADA

- Alberta Ministry of Education (2014). Guide to Education – ECS-Grade 12 (2014-2015). The first part of a guide released annually by the Alberta Ministry of Education, this document provides an overview of the Ministry's mission, guiding principles, key indicators that measure success, as well as a guide to key legislation, regulation and policies governing Alberta schools. This includes teacher policy, resource allocation policies, school leader policy and qualification requirements.
- *Mandate Letter from the Premier of Alberta to Minister of Education Gordon Dirks* (2014). This short mandate letter outlines the current priorities of the Albertan government for the Ministry of Education, including funding stability, curriculum reform and higher standards for student performance.
- OECD (2014). *Education at a Glance 2014– Canada Country Note*. The OECD released this brief on Canada's performance on a range of education indicators, including attainment, mobility and proficiency.
- Ontario Ministry of Education (2010). *New Teacher Induction Program: Induction Elements Manual*. This manual provides an in-depth look at policy for teacher induction, including the funding mechanisms for the teacher induction program.
- Ontario Ministry of Education (2014). *Equity and Inclusive Education in Ontario Schools: Guidelines for Policy Development and Implementation*. This policy manual lays out guiding principles for policy development and implementation and accountability systems for special education. It also includes sample policy memoranda and classroom tools.
- Ontario Ministry of Education (2014). *Achieving Excellence: A Renewed Vision for Education in Ontario*. This strategic plan presents the Ministry's proposed action steps for fostering excellence, equity, public confidence and student well-being in the education system.
- Riveros (2013). *From Teachers to Teacher Leaders – A Case Study*. This case study looks at teacher leadership development in Alberta from 1997-2007. Alberta's teacher leadership programs have been cited as among the strongest in the world.
- Task Force for Teaching Excellence (2014). *Report to the Minister of Education, Government of Alberta* (2014). This report presents the findings of a 16-member task force convened in 2013 to define Albertan expectations for teaching excellence, enable teachers to grow professionally, define the role of teacher leaders and, ultimately, ensure an excellent teacher for every child.

ESTONIA

- Archimedes (2006). *Factsheet, Vocational Education and Training, Estonia* – This factsheet briefly summarizes the vocational education and training system, and the qualifications and diplomas awarded students, in Estonia.
- Basic Schools and Upper Secondary Schools Act of 2010 – This legislation defines school governance, compulsory education, public right to education, national curriculum, accountability and evaluation, and teachers' rights and required qualifications.

- Center on International Education Benchmarking (2016). Estonia Overview. http://www.ncee.org/programs-affiliates/center-on-international-education-benchmarking/top-performing-countries/estonia-overview/. This case study explores the development of the Estonian education and provides resources for policymakers interested in learning more.
- The Economist (2013). *How did Estonia become a world leader in technology?* – This article traces Estonia's booming tech industry, including its early investments in school tech.
- Ministry of Education and Research (2014). *The Estonian Lifelong Learning Strategy 2020*. This five-year strategic plan, a major current initiative of the Ministry, lays out the goals and strategies for expanding access and equity in lifelong learning. It provides a glimpse into where the Ministry's priorities currently stand.
- OECD (2014). *Education at a Glance Country Note: Estonia* – This OECD brief summarizes relevant trends in demographic, attainment, and performance indicators, using PISA 2012 data.
- OECD (2013). *TALIS Country Profile: Estonia* – This brief summarizes the results of the 2013 TALIS survey of teacher attitudes, beliefs, behaviors, and qualifications.
- Statistics Estonia (2014). The Statistical Yearbook of Estonia: Education – This chapter provides relevant statistics on demographics, skills, and attainment of Estonia's students, for those who want to understand the scope and outputs of the system.
- UNESCO (2011). *World Data on Education: Estonia* – This UNESCO brief provides an overview of the education system in Estonia, major pathways, governance, early childhood education, funding, teacher and assessment policy, and relevant legislation.

FINLAND

- Abrams (2011). "The Children Must Play": *The New Republic*. In this New Republic piece, researcher Sam Abrams compares Finnish demographics and approach to instruction to the United States, and concludes that teacher professionalization and enriching curriculum are key to Finland's success.
- Finnish National Board of Education (2011). *International Comparisons of Some Features of Finnish Education and Training* – This brief analyzes data on the system structure, attainment, employment, finance and instruction for an international audience.
- Ministry of Education (2012). *Education and Research: a Development Plan 2011-2016* – This five-year strategic plan provides an overview of the system to date, as well as a look at planned reforms. Its strategies include teacher preparation, fostering more equitable access, and reforms to vocational education.
- OECD (2007). *School Leadership for Systemic Improvement in Finland* – This OECD case study explores how Finland conceives of the role of the principal, and how other players, including teachers and students, exercise leadership within a school setting.
- OECD (2014). *Education at a Glance 2014: Country Note: Finland* – This OECD brief summarizes relevant trends in demographic, attainment, and performance indicators, using PISA 2012 data.
- Sahlberg (2014). *Finnish Lessons 2.0*. This book by Pasi Sahlberg focuses on how Finland recruits, prepares and retains its teachers and builds a system that above all values teacher professionalism.
- UNESCO (2013). *World TVET Database – Finland*. This entry summarizes the structure of Finland's vocational education and training system.

HONG KONG

- Hong Kong Department of Information Services (2014). Education Fact Sheet. This short government publication provides information on funding allocations, system structure, teacher qualification policy and vocational education, among other things.
- *Education Commission Working Group (2011). Report on the Development of Education Services in Hong Kong*. This study group report, the result of a year of focus groups, discussion forums, and research, presents 17 recommendations to the Education Bureau. These range from undertaking international education benchmarking, to rebranding the education system for an international audience, to attracting more non-local students.
- Lai (2010). *Qualifications of the Teaching Force in Hong Kong Special Administrative Region, China*: This chapter from the 2007 report A Comparative Study of Teacher Preparation and Qualifications Programs in Six Nations looks at what institutions offer teacher training, what courses and practical experiences are required, and how teachers receive ongoing professional development in Hong Kong.
- Quong (2011). *An Analysis of Educational Reform at the School Level in Hong Kong*. This paper examines how 2009-2010 curriculum reforms in Hong Kong translated into corresponding changes to teacher practice.

JAPAN

- Arani, Keisuke, and Lassegard (2010). *Lesson Study as Professional Culture in Japanese Schools* – Combining historical research with a modern case study approach, this study looks at how Japanese teachers have long used collaborative research as a form of professional development.
- Fujita, Hidenori (2007). *The Qualifications of the Teaching Force in Japan*. This chapter from the 2007 report *A Comparative Study of Teacher Preparation and Qualifications Programs in Six Nations* looks at what institutions offer teacher training,

what courses and practical experiences are required, and how teachers receive ongoing professional development in Japan.

- MEXT (2011). *The Revisions of the Course of Study for Elementary and Secondary Schools*. This short Ministry presentation outlines the major elements of curriculum reform that took place from 2008-2013.
- MEXT (2012). *White Paper: Toward Implementation of Education Rebuilding*. This white paper presents the Ministry's most recent strategic plan for education reform.
- National Institute for Education Research (2011). *Education in Japan: Past and Present* – This brief from a research program of the Ministry of Education, Culture, Science, Sports, and Technology (MEXT) succinctly traces the history of education in Japan from the 1600s to 2010.
- National Institute for Education Research (2011). *Distinctive Features of the Japanese Education System* – This NIER brief explains the most unique elements of the education system for an international audience.
- OECD (2014). *Education at a Glance 2014 – Country Note: Japan*. This short OECD brief pulls out Japanese data on a range of indicators using 2012 PISA data.
- OECD (2010). *Japan: A Story of Sustained Excellence*. This OECD report explores several causes of Japan's success on the PISA league tables: the teaching force, families supports, a well-structured academic program and systemic incentives that drive students to challenge themselves.

POLAND

- Center on International Education Benchmarking (2016). Poland Overview. http://www.ncee.org/programs-affiliates/center-on-international-education-benchmarking/top-performing-countries/poland-overview/. This case study explores the development of the Polish education and provides resources for policymakers interested in learning more.
- European Centre for the Development of Vocational Training (2011). *Vocational Education and Training in Poland – Short Description*. This report focuses on the policy and legislative frameworks, teacher policies and funding formulas for a major 2010 overhaul of Poland's VET system.
- Eurydice (2012). *The System of Education in Poland*. This comprehensive report includes a wealth of information on funding, curriculum, assessment, teacher policy, and special education and equity.
- OECD (2014). *Education at a Glance 2014 – Country Note: Poland*. This short OECD brief pulls out Poland's data on a range of indicators using 2012 PISA data.
- OECD (2013). *Results from TALIS 2013 – Country Note: Poland*. This OECD brief looks at Poland's data from the 2013 Teaching and Learning International Survey, including the background, qualifications, attitudes, morale and behaviors of the nation's teachers.
- The World Bank (2010). *Knowledge Brief: Successful Education Reform: Lessons from Poland*. This World Bank brief looks at 1999 reforms to Poland's secondary school structure and curriculum, in order to explain the country's improvements on PISA league tables.

SHANGHAI, CHINA

- Gang & Meilu (2010). *Qualifications of the Teaching Force in China*. This chapter from the 2007 report A Comparative Study of Teacher Preparation and Qualifications Programs in Six Nations looks at what institutions offer teacher training, what courses and practical experiences are required, and how teachers receive ongoing professional development in China.
- OECD (2010). *Shanghai and Hong Kong: Two Distinct Examples of Education Reform in China*. This chapter from the OECD's 2010 publication Strong Performers and Successful Reformers in Education compares the education reform strategies of both Shanghai and Hong Kong. Particularly useful for its historical lens; it also deals with equity and access, teacher policy, and classroom instruction.
- *Outline of China's National Plan for Medium and Long-term Education Reform and Development (2010-2014)*. This ten-year education strategic plan lays out goals and strategies for early childhood education, compulsory education reform, equity, special education, teacher and administrator preparation and professional development, and management across China.
- The World Bank (2013). *China 2030: Building a Modern, Harmonious, and Creative Society* – Part One of this World Bank report lays out a history of the Chinese economic system and technology industry, and recommends strategies for future equitable economic growth.
- Stewart (2015). *Made in China: Challenge and Innovation in China's Vocational Education and Training System*. National Center on Education and the Economy. http://www.ncee.org/wp-content/uploads/2015/03/CHINAVETFINAL1.pdf. This report explores the progress the Chinese have made in revamping vocational education and documents their efforts to address the challenges that remain.
- Tucker, ed. (2014). *Chinese Lessons: Shanghai's Rise to the Top of the PISA League Tables*. National Center on Education and the Economy. http://www.ncee.org/wp-content/uploads/2013/10/ChineseLessonsWeb.pdf. This series of interviews with experts on Shanghai's education system explores what accounts for their high performance on international comparative assessments.
- Zhang & Jinjie (2011). *Toward China's Modern TVET System: Take Shanghai as Special Experience*: This article goes in-depth into the structure and scale of Shanghai's vocational education system, and looks at how the recent ten-year education reform plan promises to further improve this system.

SINGAPORE

- Low and Joseph (2011). *Paving the Fourth Way: The Singapore Story* – This report covers a roundtable discussion including many distinguished scholars of Singapore's education system. Professors look at the history of education policy in Singapore, current reforms and strategic planning initiatives, and especially, hone in on issues of teacher preparation.
- Ministry of Education (2014). *Education in Singapore*. This Ministry brochure provides a useful overview, including a look at curriculum requirements.
- Ministry of Education (2014). *Annual Report: The Education Endowment and Savings Scheme*. This financial report provides an overview of how Singapore provides public funding for student incentives and scholarships.
- Ministry of Education (2014). *Better Choices, Deeper Skills, Multiple Paths: Government Accepts ASPIRE Committee's Recommendations* [press release, August 25, 2014]. This recent press release announces substantial upcoming reforms to Singapore's vocational and technical education funding, policy, and structure.
- Ministry of Education (2014). *Growing our Teachers, Building our Nation* [press release, September 23, 2014] – This recent press release summarizes upcoming reforms to Singapore teacher mentoring and preparation programs, as well as to the structure of teacher career ladders.
- OECD (2011). *Singapore: Rapid Improvement Followed by Strong Performance* – This chapter from the OECD publication Strong Performers and Successful Reformers in Education presents a history of Singapore, a look at the structure of the education system, and several arguments for the country's success on PISA, including focus on mathematics and technical education, commitment to equity, and strong human resources and continuous improvement systems.
- Tan & Wong (2010). *Qualifications of the Teaching Force: Data from Singapore* - This chapter from the 2007 report A Comparative Study of Teacher Preparation and Qualifications Programs in Six Nations looks at what institutions offer teacher training, what courses and practicum are required, and how teachers receive ongoing professional development.
- *The Phoenix: Vocational Education and Training in Singapore*. National Center on Education and the Economy, 2012. http://www.ncee.org/wp-content/uploads/2014/01/The-Phoenix1-7.pdf. In this report, a team of researchers traces the evolution of Singapore's vocational education system and analyzes what accounts for its success.

TAIWAN

- Ministry of Education (2013). *Education in Taiwan 2013-2014.* This brochure from the Ministry provides an overview of the system structure, governance, upcoming reforms, teacher education, and vocational education and training.
- Ministry of Education (2011). *Technical and Vocational Education in Taiwan, ROC*. This brief dives into the structure, governance, curriculum, and enrollment of Taiwan's vocational education system.
- Ministry of Education (2008). *Administrative Plan – Intelligent Taiwan Manpower Cultivation Project*. This administrative plan outlines implementation of a substantial five-year allocation to education and employment initiatives, including a multimillion-dollar investment in new reading programs.
- Ministry of Education (2013). *Matters including teacher evaluation, teacher qualifications, certification exams, teacher in-service education and normal education university engineering*. This policy overview lays out recent initiatives to improve teacher preparation, recruitment, and training, including efforts to substantially increase the expectations of teacher preparation programs.
- Pan & Chen (2011). *Teacher Evaluation as a Catalyst for Organizational Learning*. This article shows how Taiwan uses teacher evaluation as a tool for continuous improvement and the basis for regular professional learning community meetings among school staff.

Notes

1 For more information about the OECD PISA exam, including who participates and how the test is administered and scored, visit www.oecd.org/pisa/aboutpisa/.

2 For OECD's summary of findings and implications for the U.S., see http://www.oecd.org/unitedstates/PISA-2012-results-US.pdf.

3 ETS Center for Research on Human Capital in Education (2015). America's Skills Challenge: Millennials and the Future. Retrieved from, p. 11.

4 Retrieved from nces.ed.gov/nationsreportcard/subject/publications/main2012/pdf/2013456.pdf, p. 1.

5 OECD (2011), *Starting Strong III: A Quality Toolbox for Early Childhood Education and Care*, OECD Publishing, Paris. Retrieved from dx.doi.org/10.1787/9789264123564-en.

6 Jensen, B., Sonnemann, J., Roberts-Hull, K., & Hunter, A. (2016). "Beyond PD: Teacher Professional Learning in High-Performing Systems." Washington, DC: National Center on Education and the Economy, p. 28. Retrieved from www.ncee.org/wp-content/uploads/2015/08/BeyondPDWeb.pdf; and Darling-Hammond, L., Chung Wei, R., Andree, A. (2010). "How High-Achieving Countries Develop Great Teachers." Stanford: Stanford Center for Opportunity Policy in Education, p. 3. Retrieved from edpolicy.stanford.edu/sites/default/files/publications/how-high-achieving-countries-develop-great-teachers.pdf

7 Gold Standard: The Swiss Vocational Education and Training System, March 2015, National Center on Education and the Economy
The Phoenix: Vocational Education and Training in Singapore, October 2012, National Center on Education and the Economy

What People are Saying

"We invested in this working group because we believe having a world view on education systems can give policy makers a clearer perspective on the central role education can and should play in civil society. This work has also proved to us something we've believed for a long time, when teaching is treated as a revered profession, great things are possible."

Daaiyah Bilal-Threats, National Education Association

"This diverse and bipartisan Study Group of state legislators discovered that top-performing countries have built their successful education system around a strong teaching profession. This includes recruitment of top students, rigorous preparation, meaningful professional development and empowerment of teachers to guide their own profession. This is THE cornerstone of their reforms and their success, and this should be a huge lesson for the states."

Linda Darling Hammond, Charles E. Ducommun Professor of Education; Stanford Graduate School of Education and President and CEO, Learning Policy Institute

"The NCSL report makes a compelling case for state legislators to act now on improving the outcomes their education system is producing today. The ability of U.S. students to compete on a global stage requires state legislators to use data as the backbone of their agenda for improving outcomes. The NCSL report provides a roadmap for addressing the key elements of a state policy agenda that are essential to ensuring every student is college and career ready."

John Engler, President, Business Roundtable

"The National Conference of State Legislature's *No Time to Lose* presents timely and valuable analyses and recommendations for transforming American education and training. The report stresses the importance of world-class learning systems for maintaining and improving economic, social, and political welfare in a much more competitive and knowledge-intensive world. Several features make *No Time to Lose* a valuable and timely report:

- It is not only based on solid academic research but, following the example of almost all successful American institutions, benchmarks international best practice.
- The report is addressed primarily to states, currently the most important level of government for transforming schools and other learning systems, though all public and private institutions have important roles to play in this important enterprise."

Ray Marshall, Professor Emeritus of the Audre and Bernard Rapoport Centennial Chair in Economics and Public Affairs at the University of Texas at Austin and former U.S. Secretary of Labor

"Our students deserve the best and we must pursue the best educational practices whether they are found in the United States or around the world. This report is chock full of the best lessons of what works from other countries. We should use this research to inform our work. In that way we can provide our students with the greatest possible chance at success."

Christianne Y. Runge, Director, Public Employees Division, American Federation of Teachers

"This hard-hitting, refreshingly honest report is a bipartisan clarion call for a very different definition of 'education reform' than the one that has dominated the American political landscape for years. The country will ignore it at its peril."

Marc Tucker, President and CEO, National Center on Education and the Economy

Acknowledgments

NCSL is grateful to the state legislators and legislative staff of the International Education Study Group, whose hard work and abundant energy helped create a fascinating journey that opened all of our eyes to new possibilities. We thank our partners for helping to support this work and for the perspectives they brought to our conversations. We are grateful to Marc Tucker and the staff of the National Center on Education and the Economy and its Center on International Education Benchmarking. Marc, Betsy Brown Ruzzi and Nathan Driskell helped us understand what high-performing countries have done and how those lessons can be translated to the states. They understood the importance of state legislators to the conversation and the urgency of this work. We are especially grateful to all of the national and international experts who took the time from their busy schedules to attend our meetings. They were an integral source of our learning about how and why top-performing countries organized and implemented their reforms.

NCSL staff involved in this work include Julie Davis Bell, Michelle Exstrom, Lee Posey and Madeleine Webster.

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 ISBN 978-1-58024-854-9

Commission on Innovation and Excellence in Education

What It Will Take For Maryland To Compete With The Best Education Systems in the World

Marc Tucker
National Center on Education and the Economy

November 2016

PART 1

WHY IT IS VERY IMPORTANT TO SEE

WHERE WE STAND IN RELATION

TO THE REST OF THE WORLD

NCEE Community College Research

- 2 ½ years of research on what it takes to succeed in 1st year of typical Community College
- Looked at the eight most popular CC programs, covering 80% of the programs of study
- Analyzed reading level of most popular textbooks and topics covered in 1st year math
- Talked with instructors

NCEE Community College Research

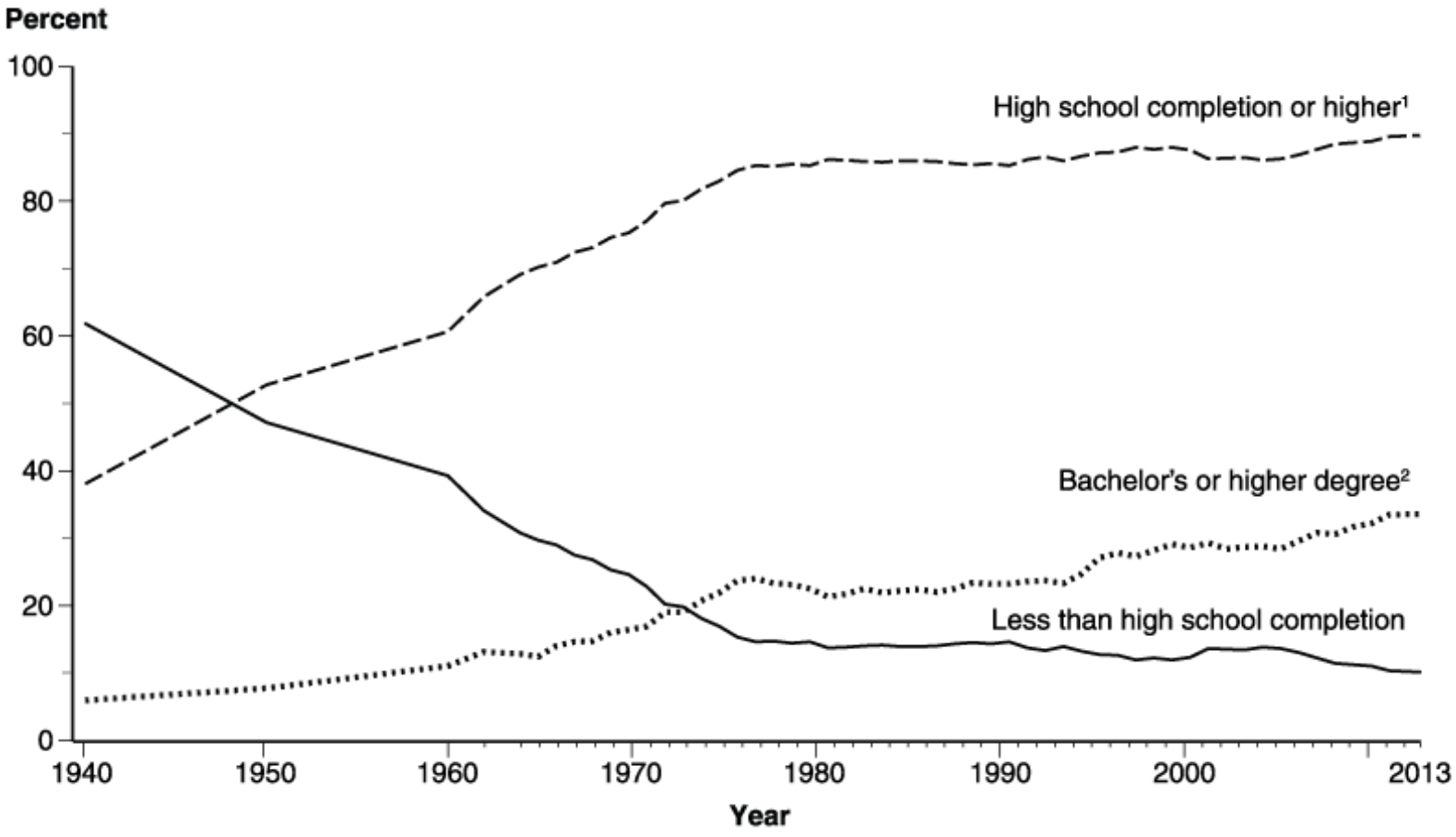
- Reading level of texts at 12th grade level
- Typical high school text now at 7th-8th grade level
- “College Math” is Algebra I, and many cannot do it
- High school grads command of middle school math very shaky and instructors report their writing is weak
- ACT told us that predictions for college success pretty much the same for 4- year colleges as for 2-year colleges

The Truth About College Readiness

- Most college-bound high school grads are not going to college—they are enrolling in very expensive high schools
- A large fraction are not ready for that high school program
- Either way, they are not ready either for college or work
- HOW DID WE GET HERE?
- HOW DOES THAT PICTURE COMPARE TO OTHER COUNTRIES' SYSTEMS?

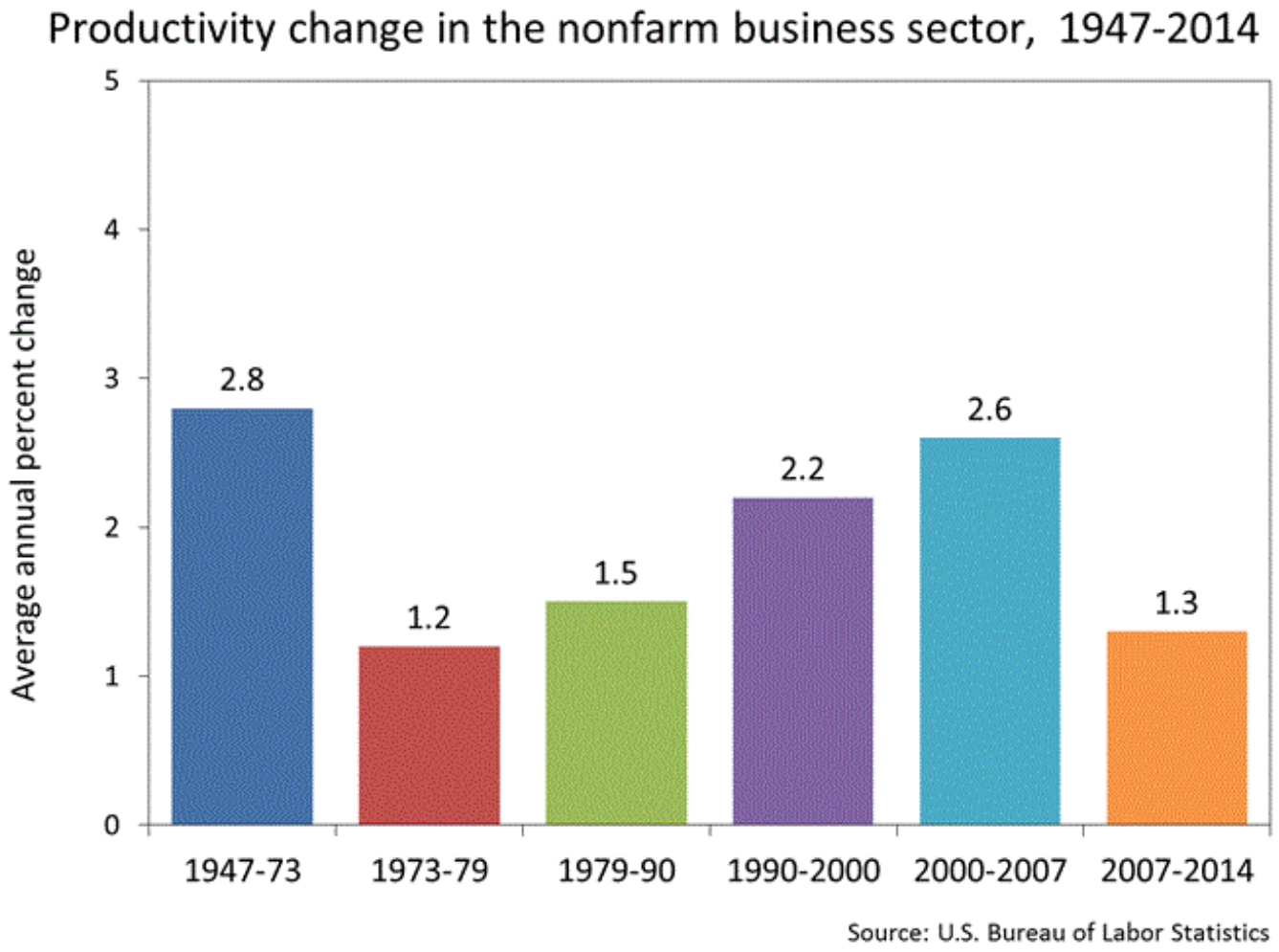
Attainment: The Last 70 Years

Figure 4. Percentage of persons 25 through 29 years old, by highest level of educational attainment: Selected years, 1940 through 2013

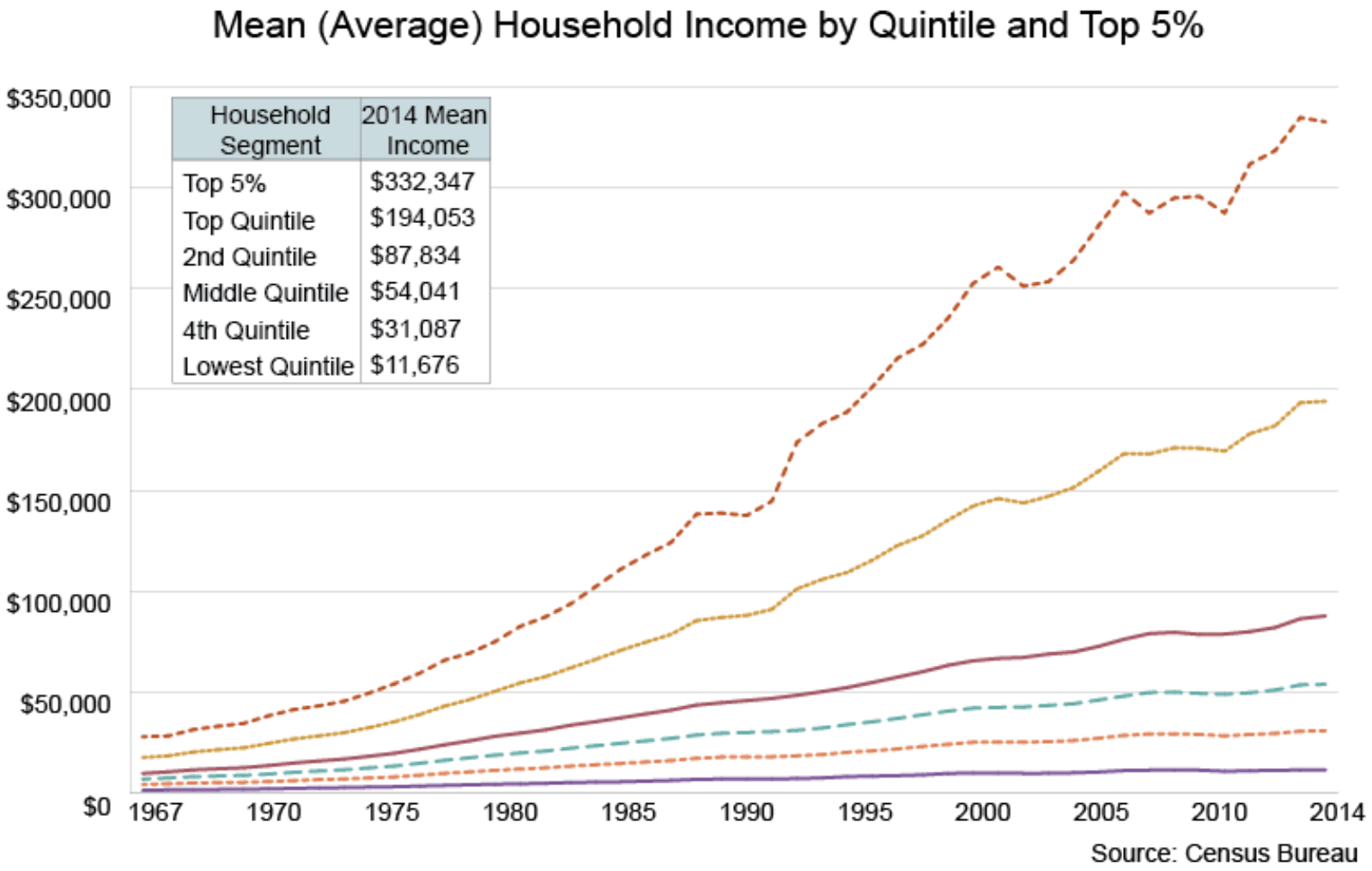


Source: US Department of Education, NCES, 2014

Labor Productivity: The Last 65 Years



Income Distribution: The Last Half Century



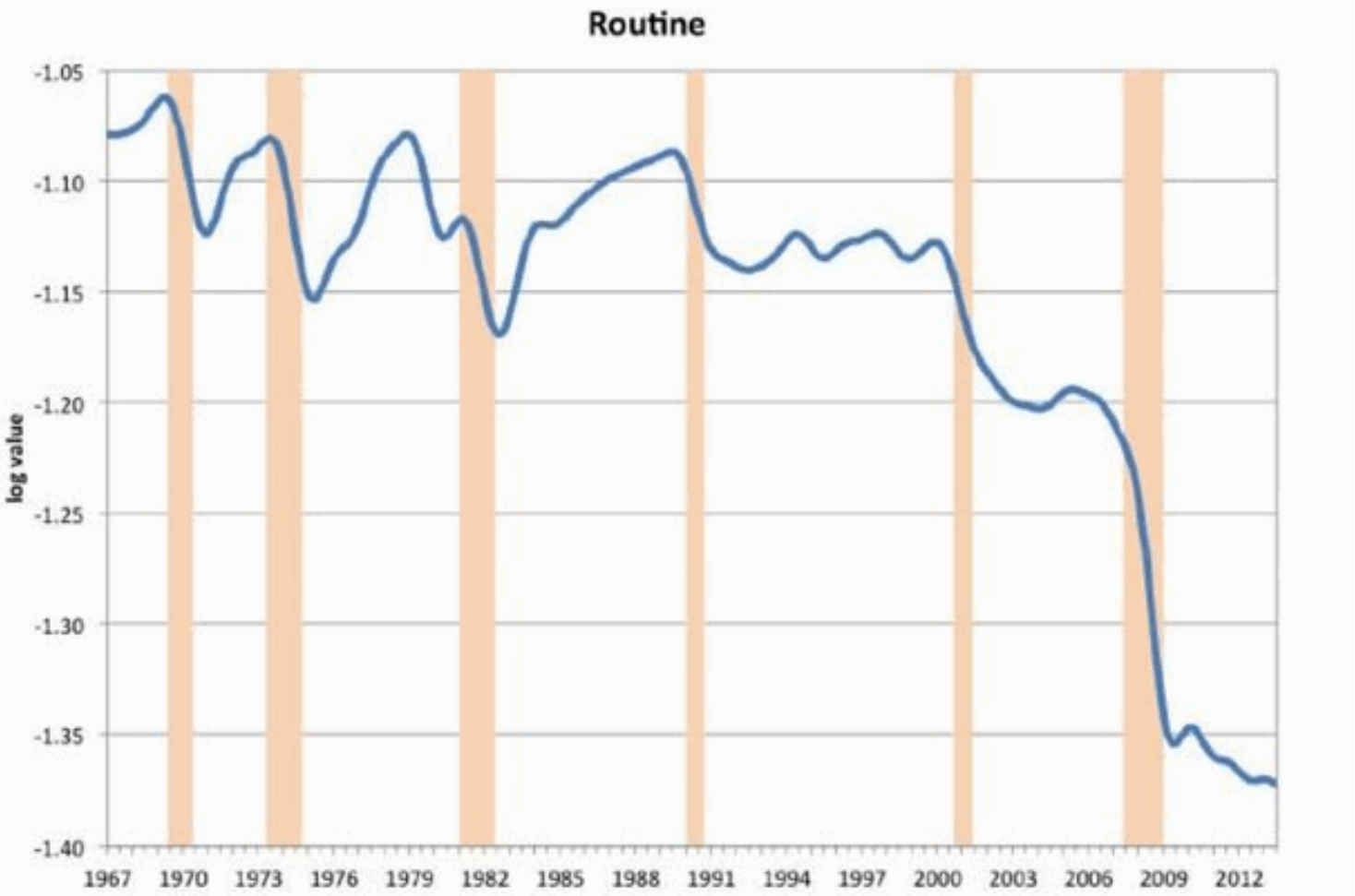
The 1970s: Crucial Turning Point

- From mid-19th century to 1970s:
  - US paces the rest of the world in attainment
  - Steady growth in productivity
  - Sustained growth
  - *Most even* distribution of income in industrialized world
- But, starting in the 1970s:
  - Attainment growth *stops*
  - Productivity growth *slows*
  - Family income *flattens*
  - Distribution of income becomes *least* equal

From the 1970s: Global Labor Markets, Advancing Automation

- Low wage competition
  - Low skill
  - High skill
  - All skill levels
- Automation of jobs involving routine work
- VAST EXTINCTION OF LOW-SKILL, LOW-WAGE ROUTINE WORK IN HIGH WAGE COUNTRIES

Employment in Routine Occupations, 1967-2013

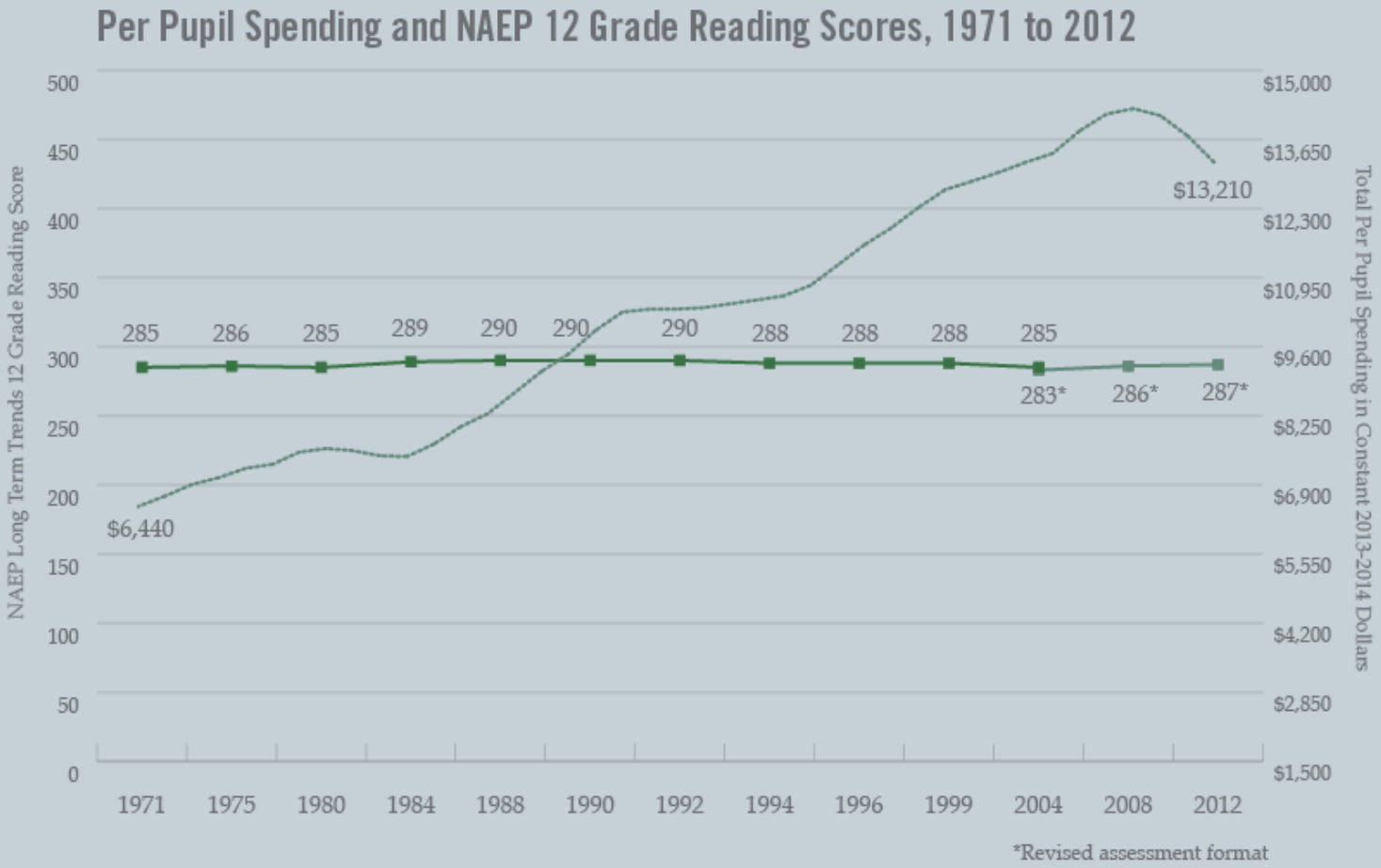


Data from the Bureau of Labor Statistics, Current Population Survey; See Jaimovich and Siu (2012).

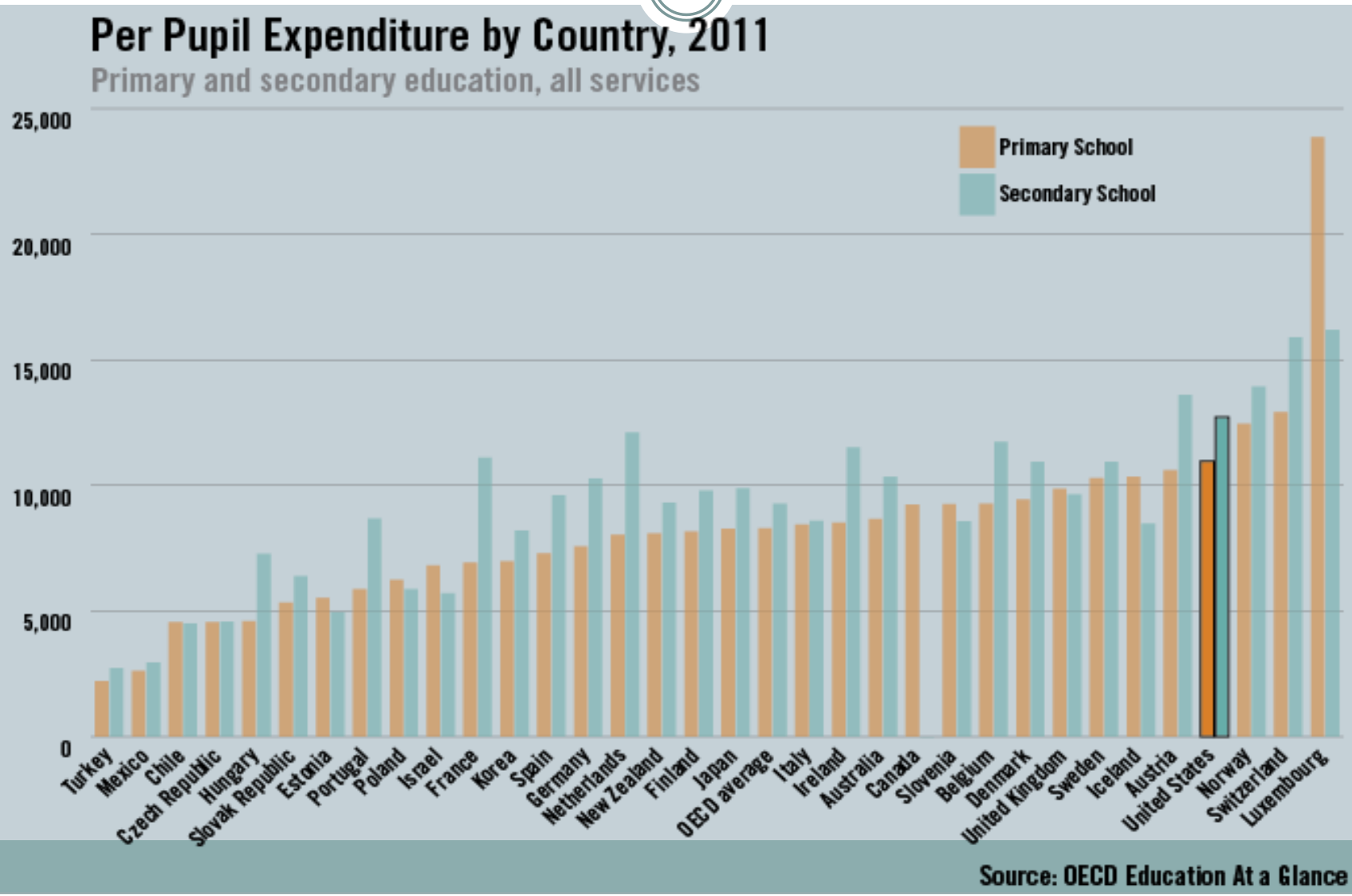
How the US Responded — Reform Agenda Since 1970's

- More money (more than 250% growth in last 20 years)
- Lower class size
- School competition (charters and vouchers)
- Technology
- Tough test-based teacher-accountability systems

What We Spent; What We Got For It



Spending Per Student



Their Model vs. Our Model: The Results

US Rankings on PISA

	Reading	Mathematics	Science
2000 (32)	15	19	14
2003 (41)	18	28	22
2006 (57)	NR	34	28
2009 (65)	17	30	22
2012 (65)	24	36	28

Source: OECD

U.S. Workforce Skills (PIAAC*)

- OECD survey of the skills of all U.S. workers
  - Reading: Average
  - Numeracy: Near the bottom with Ireland, Spain & Italy
  - Digital Problem Solving: Dead Last
- ETS analysis of 16 to 34-year-olds in survey
  - At or near the bottom in reading, numeracy & problem solving
- U.S. scores *declined* since last PIAAC survey

*Program for the International Assessment of Adult Competencies, OECD

Maryland's Choice: High Skills or Low Wages

- All states and countries can be competitive in this new environment by either:
  - Lowering wages or
  - Raising skills
- U.S. has not decided which goal to embrace
- Countries with highest performing education systems have chosen high-value-added, high skill, high wage option
- If you choose that option, you will need a world-class workforce, educated to global standards

Our Competitors Had a Different Analysis

- Did not double down on the old model (inexpensive teachers; low standards), designed to produce majority of graduates with little more than an 8th grade level of literacy
- Knew the jobs available to the grads of that system would be increasingly unemployable
- Decided that they had to provide to virtually all a kind and quality of education until then available only to their elites—for no more money than the old model
- That required a WHOLE NEW DESIGN

HOW THE TOP PERFORMERS GOT TO THE TOP

THE 9 BUILDING BLOCKS

FOR A WORLD-CLASS

<u>STATE</u> EDUCATION SYSTEM

Education Reform Agenda of Top Performers

1. ***Strong supports for children and their families***

   - ✓ Comprehensive supports for families with young children, from family allowances to prenatal care to nutritional assistance and more
   - ✓ Full affordable day care, preschools, early childhood education
   - ✓ Additional services for low-income, vulnerable families
   - ✓ Well established in Europe, advancing in Asia

Education Reform Agenda of the Top-Performers

2. ***More resources for students who are harder to educate***

- ✓ US only advanced country in which children of the wealthy get more financial support than children of the poor
- ✓ More teachers per student and, in some cases, the best teachers, in schools serving disadvantaged students
- ✓ Comprehensive additional services for disadvantaged students, in and out of school

Education Reform Agenda of the Top-Performers

3. ***World-class, highly coherent instructional systems***

- ✓ Internationally benchmarked student performance standards
- ✓ Matching curriculum frameworks
- ✓ State course syllabi based on frameworks
- ✓ High quality, essay-and-open-ended-type exams based on syllabi

Education Reform Agenda of the Top-Performers

4. ***Qualification systems with multiple no-dead-end pathways for students to achieve those qualifications***

   - ✓ No high school diploma
   - ✓ Requirements at end of each stage match the requirements for beginning next stage
   - ✓ No dead ends, many opportunities to change direction, combine qualifications

Education Reform Agenda of the Top-Performers

5. ***Abundant supply of highly qualified teachers***

- ✓ Recruit most teachers from upper segment of high school graduates (top half to top 5%)
- ✓ Moving teacher ed into research universities
- ✓ Entrance requirements those of selective research universities
- ✓ Elementary teachers specialize
- ✓ Tough content, pedagogy, research req’ts

Education Reform Agenda of the Top-Performers

6. ***Schools organized and managed to attract high quality candidates into teaching and to enable them to do their very best work***

   - ✓ Y-shaped career ladder for teachers and school leaders—strong incentives for teachers to get better and better at the work
   - ✓ More time working together in teams to improve school performance, less teaching
   - ✓ Strong continuous improvement system

Education Reform Agenda of the Top-Performers

7. ***An effective system of career and technical education and training***
   - ✓ Built on very high level of student academic performance
   - ✓ Strong apprentice component; training wage
   - ✓ Strong employer involvement
   - ✓ Highly qualified instructors, modern equipm't
   - ✓ No dead ends

Education Reform Agenda of the Top-Performers

8. ***Leadership development system that develops leaders who can manage such systems effectively***

   - ✓ This is recent development, most systems catching up on this
   - ✓ Only those who have been fine teachers, team leaders and mentors can go on to leadership positions
   - ✓ Pool groomed, opportunities for growth and mentoring provided; must have experience in low-income and minority schools to go up

Education Reform Agenda of the Top-Performers

9. ***Coherent governance system capable of implementing effective systems at scale***

- ✓ Roles at each level clear and complementary
- ✓ Clear where the buck stops
- ✓ Built on professional model
- ✓ System sets the rules, provide resources, professionals have professional discretion
- ✓ Accountability runs up and down

Why We Get So Little for the Money We Spend

- Low quality model is immensely costly
  - Hiring cheap, poorly educated teachers: high attrition rates, less expertise developed, demand for lower class sizes, low morale, more supervision, greater student waste
  - Giving up on students early: endless remediation
- Little of the budget gets to the school
- Half of our spending on the handicapped is wasted
- Far too much is spent on physical facilities
- Funding is post holed, accountability compromised

Education Reform Agenda of the Top-Performing Countries

Most important:

All the parts and pieces support one another do not work at cross purposes, as in the U.S.

Policy-making focuses on the system, not bullets.

The Bottom Line

- Get first rate teachers in front of every student
- Set very high expectations for all students, teachers
- Create a first rate curriculum
- Make sure you are measuring the right stuff
- Treat your teachers like professionals
- Give them good leadership and plenty of support
- Get the incentives right
- Spend your money for maximum return
- Never, never, never give up on the students

Thinking About Maryland

- One of the most affluent states in U.S.
- Very high per pupil expenditure, average on equalization
- Above average on attainment, but average on SAT, NAEP
- Wide gaps between advantaged and disadvantaged
- Behind world's top performers
- Like nation, high cost, relatively modest performance

Thinking About Maryland

- Strengths to build on:
  - High spending level
  - P-20 Leadership Council
  - Relatively streamlined governance and lines of authority
  - Strong citizen support for education
  - Foundation laid for strong for early childhood education

Thinking About Maryland

- Strengths to build on:
  - Adoption of the Common Core curriculum
  - Adoption of PARCC
  - Adoption of high school graduation tests
  - Fewer teachers colleges for state this size than many others
  - Initial steps on career ladders, incentives for highly qualified
  - Recent interest in career and technical education

What You Will Need

- Broad consensus on goals
  - Broadly shared prosperity
  - Competing on quality of products and services, not wages
  - Need to provide elite level of education for everyone
  - Need for a genuinely world-class education system

What You Will Need

- Understand strategies used by top performers
  - Go there-seeing is believing
  - Copy no one…build on all
- Understand the gaps between MD and global best
- Build a broadly supported long-range plan
- Build a bipartisan, coalition for long term
- Get started where the prospects for success are best

In Closing…

THANKS!

For more information:

Center for International Education Benchmarking

National Center on Education and the Economy

www.ncee.org/cieb

9 Building Blocks
For a World-Class Education System

CENTER ON INTERNATIONAL EDUCATION BENCHMARKING
LEARNING FROM THE WORLD'S HIGH PERFORMING EDUCATION SYSTEMS

Preface

The *9 Building Blocks for a World-Class Education System* is a distillation of more than 25 years of research conducted on the world's best education systems by the National Center on Education and the Economy. Our goal in conducting this research was to identify the strategies those countries used to outperform the United States in the hope that American policymakers could use that research to improve the performance of our own system.

Our Process for Selecting Jurisdictions to Study

When we began this work in 1989, we were looking for countries that significantly outperformed the United States on average student achievement, equity and efficiency, which is to say that we were looking for countries where average measured student achievement was exceptionally high; differences in results within schools, among schools and between average students and minority and low-income students were low; and taxpayers were getting good value for their money. Those metrics continue to define the system outcomes we look for.

When we started, there was very little good data on which to base our choice of countries. That changed for student performance in mathematics and science when the International Association for the Evaluation of Educational Achievement (IEA) first issued the Trends in International Mathematics and Science Study (TIMSS) report in 1995. However, since the Organisation for Economic Cooperation and Development (OECD) released the first Programme for International Student Assessment (PISA) study in 2000, we have used that data as the bases of our selection of top performers for study. That is because PISA covers more of the highly industrialized countries to which the United States is usually compared, because PISA covers more subjects than TIMSS, and because PISA is designed to find out not just how students performed on a consensus curriculum, but how well they can apply what they have learned in school to the kinds of problems they will encounter in the workplace and elsewhere outside school.

Specifically, we focus our research on the changing set of very large jurisdictions (countries, states and provinces) that place among the top 10 on the PISA league tables. This is not because there is a statistically significant difference between the top ten and those that just missed the cut—that is not the case—but because we do not want to be accused of cherry-picking the top performers in the service of a pre-determined agenda.

It is important to point out that most of the top-performing countries we have studied are often the size not of the United States, but of the average state within the United States. Our aim has been to provide research that individual states can use to match the performance of the best countries in the world.

A Focus on System Coherence and Performance

Why this focus on large-scale systems? Because, as we see it, research on the comparative performance of entire education systems is now the most important of all topics in education research. The steady advances in the global integration of labor markets has put the workers of all nations in direct competition with the workers of all the other labor markets, and advances in the automation of work have resulted in increasing competition between machines and people for the available jobs. These two forces are combining in high-wage countries to greatly reduce the available jobs for people with the kinds of skills that, for a century or more, were more than adequate to support middle class families and greatly increase the demand for workers who have the knowledge and skills characteristic of professionals. Countries that redesign their education systems to adapt to this new reality will enjoy high standards of living and sustained political stability. Those that fail to do so, especially high-wage countries like the United States, will experience steadily widening

income disparities, problems competing with other countries, and growing political instability.

It is for these reasons that we have focused on the way entire education systems work. Education systems are not simply collections of independently effective parts and pieces. Effective systems, by definition, are collections of parts and pieces that work in harmony with one another, each one reinforcing and supporting the functioning of the other parts and pieces, and all of them together contributing in a positive way to the outcomes for which the system was designed.

When we look at the United States this way, what we see is almost unique in the developed world. Visitors come from every corner of the globe to see the "peaks of excellence" in U.S. schools. But they do not come to see an effective system. People with great ideas can be found here, as can many practices well worth taking home. But the brilliant ideas and highly effective programs they spawn rarely effect more than a handful of students and are often implemented under policies and in the company of practices that do not foster their growth or even survival. So visitors do not come to the United States to learn how to build an effective education system.

This inability to develop highly effective systems at scale is in part a result of the highly fractured system of education governance in this country. Many actors who do not report to one another and who often have very different and even conflicting ideas about what ought to be done make decisions that result in often conflicting and frequently perverse incentives facing teachers, students, school administrators and others in our education system. That is not what we see when we look at the top-performing countries.

Our Methodology is Designed to Support Adaptation — Not Wholesale Adoption — of Policies

Much of the research on education in the United States is intended to enable policymakers and practitioners to identify the most effective policy or practice for any given purpose in a given context or range of contexts. Users of that research are then expected to copy or replicate the policy or practice as they implement it, because, to the extent that the implemented policy or practice deviates from what was researched, the results that the user gets will not be those that the researcher observed.

That research model cannot be used to study large-scale systems, nor would it be desirable to do so even if it were possible. To establish conclusively that one form of education system produces consistently superior results for all populations of interest, according to the dominant model of education research, one would have to randomly assign national systems of education to national populations. But it is patently impossible to announce one day that the population of Sweden will use the Singaporean system of education and Singaporeans will use British Columbia's system.

On a related point, one cannot take a key part of a well-functioning system, install it in a dysfunctional system, and expect it to produce the same results it produced in the well-functioning system. For example, if one were to take several common features of initial teacher preparation systems in high-performing education systems—say, greatly raising standards for admission to teachers colleges, selecting students from the top half of the distribution of high school graduates, moving the function of teacher education into the state's research universities—and implement those policies in the typical American state while doing nothing to increase the attractiveness of a career in teaching to very capable high school graduates, the only effect would be to dry up the supply of candidates for admission to teachers colleges, thereby producing a massive teacher shortage.

But there is a deeper problem here. Officials who run states and state education systems are simply not interested in copying any other system. They know their own context will be different in important ways from the systems the researchers studied. They will have their own politics to deal

with. The people of their state will have their own values and aims. They will face challenges the researched country did not face.

Because leaders are not interested in copying anyone, a research model that is designed to specify a model an adopter is supposed to copy whole hog will not work. The decision maker instead wants information that can be used to design that state's own model, drawing on the experience of a variety of top-performing jurisdictions. That involves, at its best, a creative process in which the system designer puts parts and pieces together, often coming from different systems that he or she thinks will work in harness with each other. The designer knows that the likelihood that those parts and pieces will work well together will increase if the parts and pieces are designed on common principles. Those parts and pieces will have to be compatible not just with each other, but with the culture, history and politics of the state for which the design is being made. There will be no implementation unless stakeholders from many corners of the state help shape the design. The state will come up with its own 'secret sauce' to add to the parts and pieces that were derived from the study of top-performing systems.

What I have just described is based on an approach to systems design developed by global American manufacturing companies in the late 1970s. At that time, U.S. companies were being bested by Japanese firms using methods that enabled them to produce higher-quality products at lower prices than their American competitors and do it in less time than it was taking for the American firms to bring their products to market. Doing this kind of research well requires a complex, demanding approach. They, too, were not interested in copying anyone; their aim was to create manufacturing processes that would enable them to do even better than the Japanese. To do that, they would have to fully understand what their competitors were doing and do it even better, in part by combining the best ideas of many competitors with each other and with their own ideas. The research on which the *9 Building Blocks* is based was done in this style of industrial benchmarking.

It follows that there is no country, state or province anywhere that is doing all of the *9 Building Blocks* perfectly as we describe in this document. They are a composite picture, drawn from our research to present an image of what a very high-performing system might look like if it were based on the best we have seen over the last quarter century, put together in a very coherent, internally consistent system, based on a consistent set of principles that inform all of the building blocks.

Why You Can Rely on Our Methods of Research and Analysis

Though we cannot with any precision say that a specific feature of the *9 Building Blocks* accounts for this or that proportion of the high achievement, equity or efficiency of a particular system, we are very confident that any country that does a good job of implementing the composite design represented by the *9 Building Blocks* will have a high-performing system. That is because 1) the principles underlying the design can be found underlying the designs of all the top performers, irrespective of national culture, history or politics; 2) when we look at American states, the ones at the top of the National Assessment of Educational Progress (NAEP) league tables look more like this composite picture than states that are not at the top of those league tables; 3) on the whole, the jurisdictions at the top of the PISA league tables have policies and practices more like those in the *9 Building Blocks* composite than American states, which typically perform at substantially lower levels; 4) countries that were not among the top performers that then joined their ranks are countries that have adopted policies and practices in the *9 Building Blocks* along the way; and 5) countries that were once among the PISA top performers, but subsequently dropped out of those ranks, are typically countries that have dropped policies and practices that are covered in the *9 Building Blocks* or introduced other policies

that conflict with them. It is true that correlation is not causation, but when you put all these facts together, they constitute, we think, a strong argument for using the *9 Building Blocks* as a framework for state education reform.

It is important to observe that the *9 Building Blocks* rest not just on the industrial benchmarking methodology described above, but also on a close reading of the data that OECD has gathered using the data from the full PISA survey. This is all correlational data, but it is very powerful. We know from it, for example, that there is no correlation between national expenditures on instructional technology and student performance; or between class size and student performance, except for students in the early grades. We know that schools in the United States do a much poorer job of enabling poor and minority students to move up the social and economic ladder than schools in most other industrialized countries. This kind of data and the analysis that goes with it is invaluable, because it both points to issues that need attention and calls into question the validity of long-held beliefs.

But correlational data of this sort cannot tell the policymaker or practitioner what educational aims the leaders of a country had, what policies it formed to achieve them, what challenges presented themselves when they tried to implement those policies, how they responded when new problems and new opportunities arose and so on. A good deal of our research focuses on points like these, points that we think are essential for policymakers to understand and learn from to develop their own reform strategies. Over the years, we have gotten ever better at formulating such questions and getting good answers to them, just as the industrial benchmarkers did when American manufacturing firms were attacked.

What's at Stake

The long-term results from the NAEP show no change at all in the scores of American high school students since the survey began more than 40 years ago. In the meantime, nearly 30 countries have overtaken the United States in achievement and equity, many by wide margins, even though the United States spends more per student than all but a handful of other industrialized countries.

Our states will either choose to learn from the countries, states and provinces that are far ahead on the global stage, or watch their citizens struggle ever harder to make ends meet and face the growing political instability that will inevitably follow as we fail to give our workers the skills they need to be competitive. We offer this analysis of the strategies used by the top performers in the hope that it will be useful to the states that choose to meet the challenges presented by a greatly changed global economy and swiftly evolving digital technologies.

Marc Tucker

1. Provide strong supports for children and their families before students arrive at school

- Countries in which young children who come to school healthy, eager to learn and ready to profit from the instruction tend to be countries in which those children do well in school.
- Some countries have extensive government supports for prenatal care, mother and child nutrition, universal health care, high-quality childcare for working mothers, high-quality preschools and family allowances for families with young children.
- Others have little or no government programs of this sort, but do have cultures that work to provide many of the same kinds of supports.
- In countries that have neither of these—especially those that are experiencing large and growing disparities in income—many children come to school with disadvantages that are very difficult to overcome, even in the best of circumstances.

2. Provide more resources for at-risk students than for others

- Top-performing countries have made explicit decisions to create systems in which all students are educated to standards formerly reserved only for their elites.
- Policymakers in these countries know that if less-advantaged students are going to achieve at league-leading levels they will have to have access to more resources than students who come to school with greater advantages.
- Most of these top-performing countries are providing more teachers to harder-to-educate students. Some are even providing strong incentives to their best teachers to work in classes and schools serving students from low-income and minority families.

3. Develop world-class, highly coherent instructional systems

- Top-performing systems typically have well-developed, highly coherent and very demanding instructional systems for all students that incorporate student performance standards, curriculum and assessments, as well as the use of instructional methods appropriate to the goals and standards of instruction.
- Top-performing countries are constantly benchmarking their standards, curricula and assessments to other leading countries.
- The standards might be expressed as stand-alone statements about what students should know and be able to do or might be incorporated in syllabi for courses, which would include all the courses in the core curriculum as well as the native language, (almost always) English, sometimes other foreign languages, mathematics, the sciences, technology, their own history, world history, often geography, music and the arts, and physical education.
- In top-performing countries, the standards for these courses typically emphasize the acquisition of
  - A wide range of complex knowledge,
  - Deep conceptual understanding of the subjects studied,
  - The ability to write well,
  - The ability to synthesize material from many disciplines to address real-world problems, and
  - Strong analytical capacity and creative and innovative capacity.
- Ministry officials develop strong curriculum frameworks designed to specify in some detail what topics are to be taught at which

grade levels, subject-by-subject and grade-by-grade.

- Though schools are expected to create their own lesson plans, the state provides extensive guidance and curriculum support for teachers. Textbooks follow that guidance closely.
- Top-performing systems typically develop one to three summative assessments, taken by all students, requiring students to respond with essays, or, in the case of mathematics, by showing how they went about solving multi-step problems.
- No top-performing country relies primarily on computer-scored, multiple-choice tests because they do not believe such tests can adequately test for acquisition of the high-level cognitive skills they are aiming for.
- Summative assessments are typically used to hold students, not teachers, accountable for their performance.
- The options available to students as they proceed with their education or enter the workplace are significantly affected by their performance on these exams.
- Scores by school are widely published.
- The content of the entire examination is typically made public after the exam is given. Also, examples of high-scoring student work are made public in order to provide guidance to teachers and students in the future as to what kind of student work will win high scores.
- In some countries, low scores for schools result in visits from expert principals and teachers who develop recommendations to improve the performance of the school.

4. Create clear gateways for students through the system, set to global standards, with no dead ends

- Instead of issuing a high school diploma—essentially a certificate of attendance—top-performing countries issue qualifications showing what high school courses the holder has taken and the grades earned in those courses.
- Because the state has specified the content of the courses and because the exams are developed and administered by the state, not the school, everyone knows just what the student has accomplished.
- Students are highly motivated to take the necessary courses and do well in them, whether they want to be a brain surgeon or an auto mechanic.
- Countries with well-developed qualifications systems have arranged them into pathways such that an individual can always go back later and pick up a qualification that he or she missed earlier.
- Successful systems have no dead ends; all paths can be linked up to others so that students can always go further in their education without having to start at the beginning.
- The qualification students receive at the end of a course of study is their ticket of admission to the next stage of their education.

5. Assure an abundant supply of highly qualified teachers

- The top-performing countries believe it will be impossible to deliver to all their students the kind and quality of education formerly reserved for their elites unless they are able to

put a very highly qualified teacher in front of all their students.

- Top-performing countries recruit their teachers from the top ranks of high school graduating classes, most in the top third to top quarter. Finland recruits from the top 10 percent, South Korea from the top 5 percent.
- Teacher training programs are highly selective, with admission rates in many top-performing countries ranging from 10–15 percent.
- Admissions screens are rigorous and comprehensive and take into account:
  - Academic qualifications (class rank, grades, scores on admissions exams)
  - Reliability to students (sometimes through observation)
  - Passion for teaching (through interviews with expert educators)
- Top performers develop very rigorous requirements for mastery of the subjects the prospective teacher will teach.
- At least a year is given over to mastery of the craft of teaching, either during teacher preparation or the first year of employment as a new teacher serves as an apprentice of a Master Teacher.
- The top-performing systems do not allow, much less encourage, "alternative routes" into teaching that bypass these rigorous requirements.
- Teachers in preparation programs are required to study research methods, enabling them to determine the effectiveness of their own work developing and implementing improved curriculum, instruction and assessment in their schools.
- Instruction for these prospective teachers is emphasized in both diagnosis and prescription as a key part of the teacher preparation curriculum to identify why students are not learning and developing strategies to address the causes.
- Teacher education is housed in top research universities, typically producing a surplus of first-rate teachers.
- Beginning teacher compensation is set at about the same level as compensation for beginning engineers.
- Very aggressive career ladders are created that increase compensation, responsibility, authority and autonomy, and higher status as teachers progress through their careers.

6. Redesign schools to be places in which teachers will be treated as professionals, with incentives and support to continuously improve their professional practice and the performance of their students

- Improving the competence of currently serving teachers is a priority as depending solely on newly trained teachers results in delayed improvement.
- Career ladders are created that develop the skills of the current teacher workforce and establish a culture and organization that supports continuous improvement of the school as a whole.
- The career ladders have four levels, each level of which is broken down into four or more steps. All except those at the top of the career ladders have teacher mentors.
- Teachers at the upper levels of the teacher career ladder:
  - Serve as mentors to new teachers and others lower on the ladder

  - Identify areas in which the curriculum and instruction methods need to be improved
  - Lead teams in the process of researching and then developing new lessons, materials and formative assessment techniques; demonstrating new lessons; revising them; and implementing them.
- Teachers meet once a week by grade and by subject to participate in all these processes. The research, development, trial, revision and evaluation process is very disciplined and highly collegial.
- Professional development is an integral part, indeed a result, of how the work of the school gets done. There is wide access to workshops for professional teachers, but this is not a workshop model of professional development.
- The integrity of the whole system depends on the creation of powerful career ladders, which in effect define what it means to have a career in teaching and create an environment in which teachers come to be treated as leaders and as professionals.
- Staffing ratios are similar to those in U.S. schools; increasing the size of classes provides time needed for teachers to work with one another.
- Teachers use teaching methods that harness the power of large class sizes to encourage students' deep understanding of class content.
- Staffing ratios are modestly higher in schools serving students from disadvantaged backgrounds and slightly lower in schools serving others.

7. Create an effective system of career and technical education and training

- The key to a healthy economy, lower wealth inequity and unemployment, and strong business competitiveness is a healthy, productive, effective system of vocational education and training (VET).
- VET systems risk collapse when enrollment is below 40 percent of students, as at that point VET becomes a last resort for students who have no other option.
- Successful VET systems are No-Dead-End Systems, and offer viable routes for students enrolled in career and technical education and training programs to acquire further education and training for work in the professions and in senior management.
- Quality training is offered that embeds modern technical skills on state-of-the-art equipment at the hands of teachers and mentors who are deeply versed in the most up-to-date equipment and practices.
- VET students study in settings that have all the attributes of real industrial settings, or by offering students an opportunity to study in real industrial settings, or both.
- Skill standards reflect the state of the art in the industries being trained for and a high level of investment in the education and training of the students.
- The demand of industry for skilled workers in the industries served by the system is matched with the supply being produced.
- Industry is encouraged to involve itself in the provision of the up-to-date equipment and training staff needed to make the system work and sufficient demand for the newly trained students to ensure a smooth transition from schooling and training to employment.

8. Create a leadership development system that develops leaders at all levels to manage such systems effectively

- Successful systems identify and develop leaders who can:
  - Get broad agreement on demanding goals for both the students and the staff,
  - Build the career ladders,
  - Recruit a highly capable staff, and
  - Create a culture in the school founded on the belief that effort determines student achievement and it is the obligation of schools to get all students to high levels of performance, no matter what.
- Systems seek out and develop school leaders with a combination of strategic skills, self-knowledge, patience, drive, management skill, ethical roots, moral qualities and knowledge based on what is known world-wide about the management of professionals.

9. Institute a governance system that has the authority and legitimacy to develop coherent, powerful policies and is capable of implementing them at scale

- To develop a modern, high-performance education system with high and internationally competitive levels of student performance and high levels of equity at reasonable cost depends on having an institution comparable to a typical ministry of education in a high-performing country.
- In top-performing systems, either at the state or national level, there is a place where the buck stops that has responsibility for all policymaking or management functions directly related to education and can be held accountable for the design and functioning of the system as a whole.
- In effective systems, education professionals in the ministry are responsible for planning and proposing policies that can then be debated by the responsible elected officials, and are then responsible for carrying out the decisions their legislatures make.

Massachusetts: Jurisdiction Profile

System Demographics

Geography

Massachusetts is an economically healthy and generally wealthy state with a rich history and culture dating back to its pivotal role in the founding of the United States. Driven by strong information technology and biotech industries and the presence of some of the world's best universities, Massachusetts has recently seen strong economic growth and an increase in high-wage jobs.

With a 2015 population of 6.8 million,[1] Massachusetts is the 15th largest state in the United States and the most populous of the six states that comprise the country's northeastern New England region. It is also the third densest state in the country, with a land area of only 10,500 square miles. Its capitol and most populous city is Boston, and over 80 percent of the state population lives in Boston or one of its suburbs in the Greater Boston metropolitan area. As such, only 8 percent of its population lives in rural areas, one of the lowest rates in the country. The state is fairly racially diverse, with 76 percent of its population being white, 10 percent Hispanic, 7 percent African American, and 5 percent Asian Pacific Islander.[2]

More information about Massachusetts can be found at:

- http://doe.mass.edu
- www.mass.gov

Number of schools and students

In 2015-2016, Massachusetts had 953,429 students in 1,869 K-12 public schools across 409 school districts.[3] Of these students:

- 27.4 percent were socioeconomically disadvantaged
- 9.0 percent were English language learners
- 17.2 percent were students with disabilities[4]

Of the 1,869 public schools, 80 are charter schools, which operate independently of local school boards under a charter granted by the State Board of Elementary and Secondary Education.

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[1] U.S. Bureau of the Census (2015). American Fact Finder. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

[2] U.S. Bureau of the Census, Statistical Abstract of the U.S. 2012, Table 19, http://www.indexmundi.com/facts/united-states/quick-facts/all-states/asian-population-percentage#map

[3] http://profiles.doe.mass.edu/state_report/enrollmentbygrade.aspx

[4] http://profiles.doe.mass.edu/state_report/selectedpopulations.aspx

The Massachusetts Department of Elementary and Secondary Education reported that districts employed 72,309 teachers in 2015-2016, for a student-teacher ratio of 13 to 1.[5]

System structure

In Massachusetts, compulsory school starts at age six and continues until a student is at least 16. There is no gateway exam between elementary and secondary school and, as in most states, students progress through school by getting passing grades in their classes. There is, however, a gateway exam at the end of high school in Massachusetts. Prior to 2016, in order to graduate from high school, all students had to earn a passing score of at least 240 on the grade 10 Massachusetts Comprehensive Assessment System (MCAS) tests in English Language Arts and mathematics, and at least 220 on one of the MCAS tests in Science, Technology, or Engineering. In 2014, 88 percent of 10th graders met these benchmarks.[6] Now that Massachusetts is transitioning to a new statewide exam system, which is a hybrid of MCAS and the Partnership for Assessment of Readiness for College and Careers (PARCC), it will set new cut scores on those exams. Students who fail to meet the passing standards can retake the tests or apply for a waiver.

In 2015, 72 percent of secondary students in the state completed the MassCore curriculum, the state's recommended program of study for college readiness.[7] It includes four years of English, four years of mathematics, three years of a lab-based science, three years of history, and two years of a foreign language. The state has shown that students who complete MassCore are more likely to meet admissions requirements for selective universities.[8]

Governance arrangements

State Governance

Massachusetts separates oversight of early childhood education, higher education and K-12 education between three separate agencies: the Department of Early Education and Care, the Department of Elementary and Secondary Education and the Department of Higher Education. A Commissioner, appointed by the Governor, runs each. The Executive Office of Education, situated within the office of the state's governor and led by a State Secretary for Education, has

[5] http://profiles.doe.mass.edu/state_report/teacherdata.aspx

[6] WBUR News and Wire Services (2014). 88 Percent Pass MCAS, But Achievement Gaps Remain. *90.9 WBUR*. http://www.wbur.org/2014/09/19/mcas-achievement-gap

[7] Massachusetts Department of Elementary and Secondary Education (2015). 2014-2015 MassCore Completion Report. http://profiles.doe.mass.edu/state_report/masscore.aspx

[8] U.S. Department of Education (2014). Massachusetts Districts Adopt Rigorous MassCore Course Requirements for High School Graduates. http://www.ed.gov/edblogs/progress/2014/01/massachusetts-districts-adopt-rigorous-masscore-course-requirements-for-high-school-graduates/

some authority over these three principal agencies in order to promote overall coordination of priorities within the comprehensive education system. As such, the work of the Executive Office focuses on issues that cut across the three agencies, such as sharing information and data among them.[9] The Executive Office is not the only body to which the Departments are accountable: several boards with both elected and appointed members also oversee the work of the Departments. The responsibilities of each department, and the corresponding board to which they are accountable, are outlined in more detail below.

The Department of Elementary and Secondary Education has oversight of K-12 school districts, charter school authorizing, teacher licensure and teacher education programs through their Office of Educator Licensure. A 12-member Board of Elementary and Secondary Education oversees the Department. It has the authority to set policy for licensure, assessment, teacher quality, interventions for underperforming schools, governance and other matters. Ten members are elected (including one student member), the chair is appointed by the governor, and the governor also appoints the Secretary of the Board, who by law also serves as the Commissioner of the Department of Elementary and Secondary Education.

The Department of Early Education and Care is responsible for licensing and regulating childcare providers and adoption and child placement agencies, providing professional development to early education and care providers, distributing financial assistance to families for early education and out-of-school-time programs, and matching needy families with additional services, as required. It is also accountable to a Board of Early Education and Care, consisting of 11 members appointed by the governor (including the Secretary of Education), which is responsible for financial oversight of the early education system and setting policy for the quality rating and improvement system that evaluates providers.

The state Board of Higher Education consists of 11 voting members: nine are appointed by the governor (including the State Superintendent of Education,) and two are university representatives elected by the trustees of the University of Massachusetts (UMass) and the State Community Colleges and Universities. There are also two nonvoting student members. The Department of Higher Education reports to the Executive Office of Education and the state board, and implements the policy set by the board in partnership with the UMass system. The state board also oversees the University of Massachusetts Board of Trustees and the Board of State Colleges and Universities. The University of Massachusetts and State College Boards have broad authority for setting

[9] Massachusetts Executive Office of Education (2016). The Executive Office of Education. http://www.mass.gov/edu/

programmatic and strategic policies for their organizations, but they are expected to submit all of their five-year plans, including strategic plans and budgets, to the Board of Higher Education for approval.

Although the United States does not have a constitutional right to equal education in its national Constitution, Massachusetts is one of 30 states where the state constitution outlines such a right. As such, state courts have authority for determining whether students' rights to educational equity and adequacy are being violated.

National Governance

As a state, Massachusetts is also accountable to the federal United States government. However, the recently passed Every Student Succeeds Act sharply circumscribed the authority of the U.S. Department of Education. As a result, the United States is in a period of transition from historically stronger federal control over elementary and secondary education, when the federal government used its funding authority to compel states to adopt common standards for student learning, school and teacher evaluation systems, and school closure policy for low performing schools, to a period of more relaxed federal control. This is not to say that the federal government has no authority over Massachusetts: as with all states in the United States, Massachusetts receives approximately 10 percent of its funding from the federal government, and is required to spend that money according to certain guidelines attached to the grants they receive. The state is also required to be in compliance with federal law and regulations.

Local Governance

All states in the United States have a strong tradition of local control. Individual school district offices do most of the oversight of individual schools. District superintendents who are appointed by elected or appointed local school boards lead these offices. Local school boards also have authority for funding, procurement, and some curricular decisions, although these are subject to standards and other requirements laid out in state board regulations and state statute.

Funding and expenditure

In the United States, the states have the primary responsibility for funding public schools, though, as a practical matter, most states expect the cities, towns and county governments to provide a good deal of the funding for their schools through local property taxes. The federal government supplements this funding, mostly to provide additional funds for schools serving low-income, minority and special needs students. States vary by not only the formula by which funds are allocated to schools, but also the ratio between state and local district funding. Since much of education funding is traditionally raised and allocated at the district level based on local property taxes, the level of funding has traditionally

correlated to the wealth of the district, resulting in gross inequalities in funding between the rich and the poor in some U.S. states.

Massachusetts is traditionally one of the top spending states in the country. In 2012, Massachusetts spent $14,142 per student, the 8th highest level of state spending in the nation.[10] Like most states, Massachusetts sets a base amount of spending per pupil and then adds additional funds for demographic factors that require more resources. The state adds between 7 and 34 percent additional funding for English language learners, depending on the grade level; 127 percent additional funding for special education students; and 26-33 percent additional funding for low-income students.[11] Massachusetts's additional funding for disadvantaged students is among the highest across the country. Overall, Massachusetts spends 7.3 percent more state and local dollars on each student in a low-income district than in a high-income district, the 6th highest percentage of *additional* spending among states. The figure is 14.8 percent when federal funding is counted, again the 8th highest among states.[12]

Accountability and Transparency

Massachusetts tracks progress of its education system by issuing public reports on student outcomes. Annual school profiles report scores on statewide tests, as well as other demographic and achievement data such as high school graduation rates. The state also publishes district and statewide reports comparing outcomes for specific schools with "peer" schools that have similar demographics.[13]

Massachusetts has implemented a teacher evaluation system that requires all teachers to develop their own personalized professional development plans, based on goals they set for improvement. Like most states, teacher and principal evaluations rely on a combination of ratings of professional practice, generally consisting of observations and student or staff surveys, and student outcomes, including scores and improvements on teacher-determined measures of learning as well as standardized tests for tested grades and subjects. Positive teacher evaluation results can give teachers more autonomy to choose how they develop

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[10] National Center for Education Statistics, Revenues and Expenditures for Public Elementary and Secondary Education (2013). Cited by Annie E. Casey Foundation's Kids Count Data Center. http://datacenter.kidscount.org/data/tables/5199-per-pupil-educational-expenditures-adjusted-for-regional-cost-differences?loc=1#detailed/2/2-52/false/868,867,133,38,35/any/11678

[11] Massachusetts Department of Elementary and Secondary Education (2016). School Finance – Chapter 70 Program. http://www.doe.mass.edu/finance/chapter70/

[12] Brown, E. (2015). In 23 states, richer school districts get more local funding than poorer school districts. *The Washington Post.* https://www.washingtonpost.com/news/local/wp/2015/03/12/in-23-states-richer-school-districts-get-more-local-funding-than-poorer-districts/

[13] Massachusetts Department of Elementary and Secondary Education (2016). School/District Profiles. http://profiles.doe.mass.edu/

these plans; negative evaluation results mean that teachers are required to develop improvement plans with supervisors that consist of additional professional development.[14] There are school districts experimenting with rewarding teachers who have effective performance ratings with monetary bonuses, although the specifics of these incentives are determined at the district level. With the passage of the Every Student Succeeds Act in 2016, the federal requirement that teacher evaluation be based, in part, on student test scores is removed. It is not clear yet whether Massachusetts will revise its evaluation system.

As required by federal law, Massachusetts identifies poorly performing schools by looking at test scores and improvement in scores overall and for subgroups of students as well as other measures like graduation rates. The state requires schools to develop improvement plans. Schools that are persistently low-performing are required to choose among several turnaround models with strategies such as replacing school staff and leadership, granting schools autonomy to restructure and choose staff, assigning mentors and coaches to schools, providing intensive professional development focused on understanding data and instructional strategies, and setting up learning communities of teachers to ensure that the school continues to improve. It remains to be seen how the recent passage of ESSA, which abolishes previously enforced federal requirements related to school turnaround, will affect the state's policy on turnaround models for low-performing schools.

Massachusetts also identifies the lowest performing 10 percent of districts in the state. The state has five levels of tiered supports for districts depending on their level of need. The state provides robust assistance to these districts through its network of regional District and School Assistance Centers as well as on-line tools and supports. The Department's Office of District and School Turnaround also provides targeted assistance to the 10 largest urban districts in the state. Massachusetts has a provision in law to take over any districts that are critically low performing. There are currently two districts in this status.[15]

[14] Massachusetts Department of Elementary and Secondary Education (2015). Massachusetts Framework for Educator Evaluation. http://www.doe.mass.edu/edeval/

[15] Executive Office of Education (2016). Office of District and School Turnaround. http://www.mass.gov/edu/government/departments-and-boards/ese/programs/accountability/support-for-level-3-4-and-5-districts-and-schools/school-and-district-turnaround/

System Performance

NAEP

Massachusetts is consistently the top-performing state in the United States on the National Assessment of Education Progress (NAEP), the national assessment system for comparing the educational progress of states. In 2015, it ranked:

- First among states in 4th grade math, with a scale score of 251
- First among states in 8th grade math, with a scale score of 297
- First among states in 4th grade reading, with a scale score of 235
- Second among states in 8th grade reading, with a scale score of 274, not statistically different from New Hampshire's score of 275[16]

Statewide Tests

In order to graduate from high school, all students have had to earn a passing score of at least 240 on the grade 10 Massachusetts Comprehensive Assessment System (MCAS) tests in English Language Arts and mathematics, and at least 220 on one of the MCAS tests in Science, Technology, or Engineering. As of this year, the state is transitioning to a new exam and will set new corresponding cut scores. In 2014, 88 percent of 10th graders met these benchmarks in 10th grade.[17]

PISA

Massachusetts was one of three U.S. states to administer the Programme for International Student Assessment (PISA) in reading, math and science in 2012. This enables it to be compared to the United States average, as well as to 64 other international jurisdictions. The state's scores were impressive: it scored the highest of the three U.S. states (the others were Connecticut and Florida,) and far above the United States and OECD average scores. In math, Massachusetts scored 514, ranking 16th among 65 jurisdictions and well above the U.S. average of 481. In reading, Massachusetts scored 527, ranking 6th among all jurisdictions and well above the U.S. average of 498. In science, Massachusetts 527, ranking 9th among international jurisdictions and well above the U.S. average of 497.[18] [19]

Reform priorities

Massachusetts has among the highest per capita incomes in the nation, and generally has among the top per-pupil spending costs. But its success is due to more than spending. It has a long history of focusing on education improvement

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[16] National Center for Education Statistics Institute for Education Sciences (2015). http://nces.ed.gov/nationsreportcard/states/

[17] WBUR News and Wire Services (2014). 88 Percent Pass MCAS, But Achievement Gaps Remain. *90.9 WBUR*. http://www.wbur.org/2014/09/19/mcas-achievement-gap

[18] National Center for Education Statistics, Institute of Education Sciences (2012). PISA State Results: Massachusetts. https://nces.ed.gov/surveys/pisa/pisa2012/pisa2012highlights_8b.asp

[19] NCES. 2014. PISA 2012 Data Tables, Figures and Exhibits. https://nces.ed.gov/pubs2014/2014024_tables.pdf

and developing the infrastructure at the state level to support steady reform. In the middle 1990s, Massachusetts' students were performing right in the middle of the pack on national tests. In 1992, 23 percent of the state's 8th graders met proficiency standards in math according to NAEP. Business leaders worried that students would not be globally competitive and pushed legislators to take action. In 1993, Massachusetts passed the Education Reform Act, which put in place rigorous, statewide standards in English language arts, math, history/social science, foreign languages, health, and science, technology and engineering. The Massachusetts Common Core of Learning outlined what students were expected to know and be able to do by the time they graduated from high school. The state also created a high school exit exam, known as the MCAS, which was first implemented in 1998.

Massachusetts continues that tradition of state-driven, system-wide reform today. Recent major reform priorities include:

High Standards for All Students

Massachusetts' Board of Elementary and Secondary Education adopted the Common Core State Standards in English Language Arts and Mathematics in 2010. The state is also a member of the Partnership for Assessment of Readiness for College and Careers (PARCC). In school year 2014-2015, the state gave districts the option to use either PARCC or the state's homegrown Massachusetts Comprehensive Assessment System (MCAS) tests, in order to see which one better served their needs. However, in November 2015 the State Board decided to develop its own new assessment that will incorporate parts of the PARCC tests along with parts of MCAS. The state will use the new, hybrid test starting in 2017.[20] Massachusetts also adopted the Next Generation Science Standards. The state provides districts and teachers with curriculum frameworks, aligned to the standards, for each subject at each grade level as well as professional development opportunities and supporting instructional materials based on those frameworks through an online portal.

Building Stronger Teacher Preparation Systems

In Massachusetts, earning an initial teaching license, valid for five years, requires a bachelor's degree from an approved institution and passing the Massachusetts Test for Educator Licensure. Teachers can earn a Professional License, which grants tenure protections, after three years on the job, but only after obtaining a master's degree in teaching (which can be waived for National Board-certified

[20] Fox, J. (2015). Education board votes to adopt hybrid MCAS-PARCC test. *The Boston Globe.* https://www.bostonglobe.com/metro/2015/11/17/state-education-board-vote-whether-replace-mcas/aex1nGyBYZW2sucEW2o82L/story.html

teachers).[21] However, as with most states, Massachusetts has an enormous number of approved teacher education programs, 82, and a variety of alternative routes into teaching for college graduates, including Teach For America and a set of accredited charter schools that offer preparation courses for their first-year teachers.[22] Furthermore, the program of study in teacher education is not standardized.

Given this variability in program offerings and the difficulty of ensuring program quality at the state level, Massachusetts has taken several steps in order to improve the quality of its teaching pool. First, the state requires a more difficult and demanding test for licensure than any other state in the country. In order to be certified, candidates must take the Massachusetts Test for Educator Licensure (MTEL), which the state commissioned from Pearson as a more rigorous alternative to the notoriously easy-to-pass Praxis, which is required in most other states. All candidates are required to take the MTEL for Literacy Skills, along with additional tests depending on the subjects they will teach. Elementary school generalists may be required to take up to six tests, including special education, English as a Second Language, math, general curriculum, literacy and writing, and foundations of reading, depending on the populations they serve.[23] The pass rate for the required Literacy Skills test was 84 percent in the most recent administration (winter 2015,) but the pass rates for the special subject tests averaged to only 64 percent.[24] Those that pass all tests required of them receive an Initial License, which is valid for three years.

Furthermore, once new teachers are placed in schools, they have access to additional supports and opportunities to learn in their first year. Massachusetts has a statewide induction program that requires new teachers to be mentored for one year following certification. Mentors are required by state regulation to be trained and to receive release time to observe and coach.[25] However, there is no statewide, formal process for identifying these mentors: recruitment and hiring practices for mentors are left to individual districts.

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[21] Massachusetts Executive Office of Education (2016). Teacher License Types and General Requirements. http://www.mass.gov/edu/government/departments-and-boards/ese/programs/educator-effectiveness/licensure/academic-prek-12/teacher/teacher-license-types-and-general-requirements-.html

[22] Massachusetts Department of Elementary and Secondary Education (2015). Search Results: Organizations. http://profiles.doe.mass.edu/search/search.aspx?leftNavId=11238

[23] Massachusetts Department of Elementary and Secondary Education (2015). Massachusetts Test for Educator Licensure (MTEL) General Information: Subject Matter Test Requirements. http://www.doe.mass.edu/mtel/testrequire.html

[24] Massachusetts Department of Elementary and Secondary Education (2015). Massachusetts Tests for Educator Licensure (MTEL) Number of Examinees and Percent of Examinees Passing Each Test by Examinee Category. http://www.doe.mass.edu/mtel/results/2016-0117.html

[25] Massachusetts Department of Elementary and Secondary Education (2002). Teacher Induction Programs. http://www.doe.mass.edu/educators/mentor/teachers.html

Improving Early Childhood Education

Massachusetts was the first state in the nation to bring early childhood services under one roof in 2005, when the Department of Early Care and Education was created with a mandate to better coordinate services and expand access. Governor Deval Patrick came into office in 2008 with a "readiness" agenda that resulted in an Education Action Plan committing the state to work towards universal preschool, free community college for early childhood educators and new curriculum and program standards for birth to age 3 programs. Massachusetts created the Universal Pre-K grant program, established an Early Childhood Educator Scholarship program, developed a set of state-level professional development programs for early childhood educators including a Peer Assistance and Mentoring Program, and created a "career ladder" for early childhood workers as a tool to organize compensation and professional development. They have also notably created a post-Master's degree program in early childhood to increase state expertise in the field. With its federal Race to the Top Early Learning Challenge and Preschool Development grants, Massachusetts is continuing to expand access to preschool for low-income families and raising the quality of the early education teaching force.

Massachusetts requires districts to offer at least half-day kindergarten, although attendance is not mandatory. Massachusetts does not offer statewide Pre-Kindergarten, although many districts offer Pre-Kindergarten and the lowest income children in the states are offered Head Start programs and subsidies for private preschool or childcare. Statewide, 59.5 percent of 3-4 year olds are enrolled in pre-school while only 44 percent of low-income children are enrolled.[26] Like most states, data on childcare for children age 2 is not reported, as most childcare providers are private and many are not licensed.

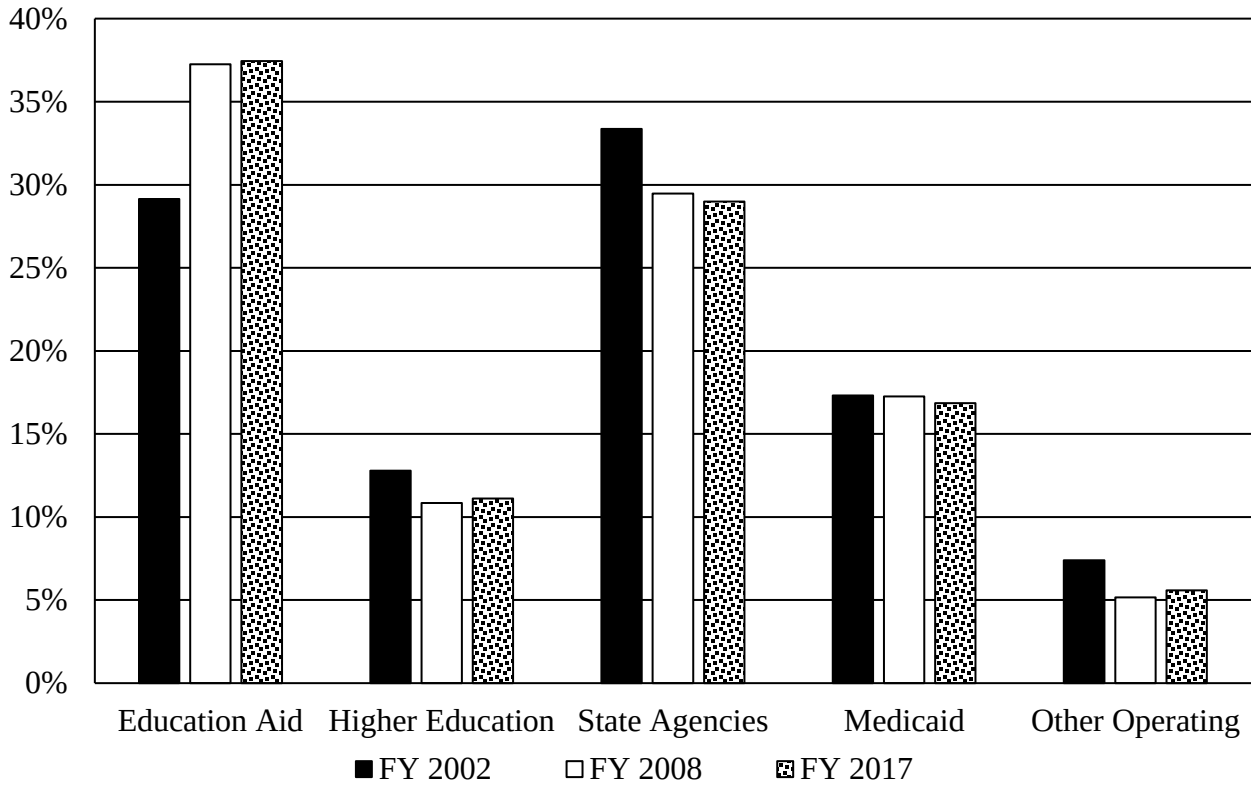
[26] Education Week (2015). Preparing to Launch: Early Childhood Academic Countdown – Massachusetts State Highlights 2015. http://www.edweek.org/media/ew/qc/2015/shr/16shr.ma.h34.pdf

Commission on Innovation and Excellence in Education

Follow-up Information from the
September 29, 2016 Meeting

October 31, 2016

Budget Components as a Percent of General Funds



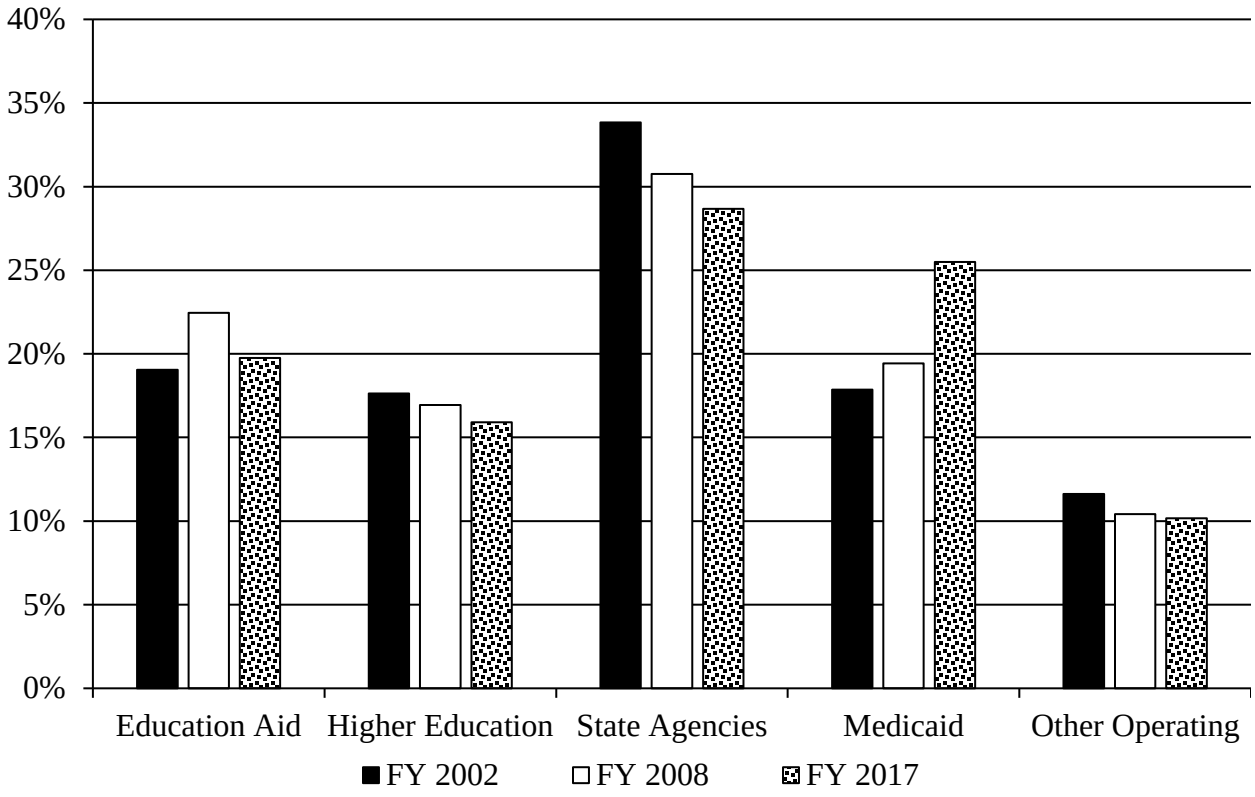
Note: Education aid includes retirement, MSDE headquarters, Maryland School for the Deaf, Autism Waiver, Maryland School for the Blind, Blind Industries and Services in Maryland, State aided education institutions, adult education, and adult and juvenile corrections education. Includes Education Trust Fund (ETF) and Higher Education Investment Fund (HEIF) in fiscal 2017. ETF was estimated to be $459 million and HEIF was estimated to be $66 million in fiscal 2017. Although these are technically special funds, they are used to replace general funds that would otherwise have been needed. Other operating includes debt service, county and municipal aid, and non-Medicaid entitlements. Fiscal 2017 is the legislative appropriation.

Source: Department of Legislative Services

- Total general fund budget was $10 billion in fiscal 2002, $14.3 billion in fiscal 2008 and, including ETF and HEIF, $17.5 billion in fiscal 2017.

- Education aid, prior to Bridge to Excellence, accounted for 29% of the general fund budget in fiscal 2002 and has accounted for 37% for each of fiscal 2008 and 2017.

Budget Components as a Percent of Total Funds



Note: Education aid includes retirement, MSDE headquarters, Maryland School for the Deaf, Autism Waiver, Maryland School for the Blind, Blind Industries and Services in Maryland, State aided education institutions, adult education, adult and juvenile corrections education, preK expansion, national board certification, nonpublic textbooks, and BOOST grants. Total funds include general funds, special funds, and federal funds. General obligation bonds, PAYGO, and reserve funds are excluded. Higher education includes unrestricted and restricted funds. Other operating includes debt service, noneducation county and municipal aid, and non-Medicaid entitlements. Fiscal 2017 is the legislative appropriation.

Source: Department of Legislative Services

- Total fund budget was $19.2 billion in fiscal 2002, $27.5 billion in fiscal 2008, and $38.9 billion in fiscal 2017.

- Education aid, prior to Bridge to Excellence, accounted for 19% of the total fund budget in fiscal 2002, 22% in fiscal 2008, and 20% in fiscal 2017.

Breakdown of Students with Special Needs

Unduplicated Count

School Year 2014-2015

County	Total Students	No Special Needs	Only ELL	Only FARM	Only SpecEd	ELL and FARM	ELL and SpecEd	SpecEd and FARM	ELL, FARM, and SpecEd
Allegany	8,800	3,368	-	4,079	356	*	-	990	*
Anne Arundel	80,438	48,130	646	21,379	3,792	2,880	60	3,246	305
Baltimore City	82,559	18,320	2,227	47,715	2,246	1,808	98	9,943	202
Baltimore	111,905	51,216	1,070	42,880	5,162	3,683	68	7,533	293
Calvert	16,103	11,496	51	3,097	850	74	*	520	*
Caroline	5,610	2,234	15	2,430	179	356	*	379	15
Carroll	25,615	18,525	64	4,083	1,740	219	*	961	17
Cecil	15,831	7,670	34	5,667	910	182	*	1,332	30
Charles	26,483	15,251	101	8,017	1,388	320	*	1,367	30
Dorchester	4,682	1,383	*	2,748	113	105	*	316	*
Frederick	40,910	26,582	404	8,099	2,485	1,659	61	1,442	178
Garrett	3,841	1,895	-	1,546	132	*	-	266	-
Harford	37,357	22,850	158	9,487	2,430	302	24	2,071	35
Howard	55,287	38,775	919	9,188	3,311	1,409	102	1,425	158
Kent	2,046	893	*	849	103	38	-	152	*
Montgomery	157,490	84,206	5,835	33,712	9,089	15,612	1,017	5,185	2,834
Prince George's	129,647	39,373	2,258	56,667	4,476	16,995	223	7,954	1,701
Queen Anne's	7,664	5,103	21	1,530	491	168	*	331	13
St. Mary's	17,987	11,187	79	4,903	899	140	*	755	16
Somerset	2,870	853	27	1,471	111	103	*	299	*
Talbot	4,614	2,330	24	1,545	186	264	-	240	25
Washington	22,315	10,924	104	8,948	796	292	11	1,218	22
Wicomico	14,712	5,173	98	7,081	470	563	*	1,250	71
Worcester	6,672	3,329	32	2,417	321	98	*	450	19
SEED School	391	35	-	312	*	-	-	42	-
% of Total		**48.9%**	**1.6%**	**32.9%**	**4.8%**	**5.4%**	**0.2%**	**5.6%**	**0.7%**

ELL: English Language Learners

SpecEd: Special Education

FARM: Free and Reduced-price Meals

Note: The * indicates instances of 10 or fewer students to preserve student privacy.

Source: Maryland State Department of Education