

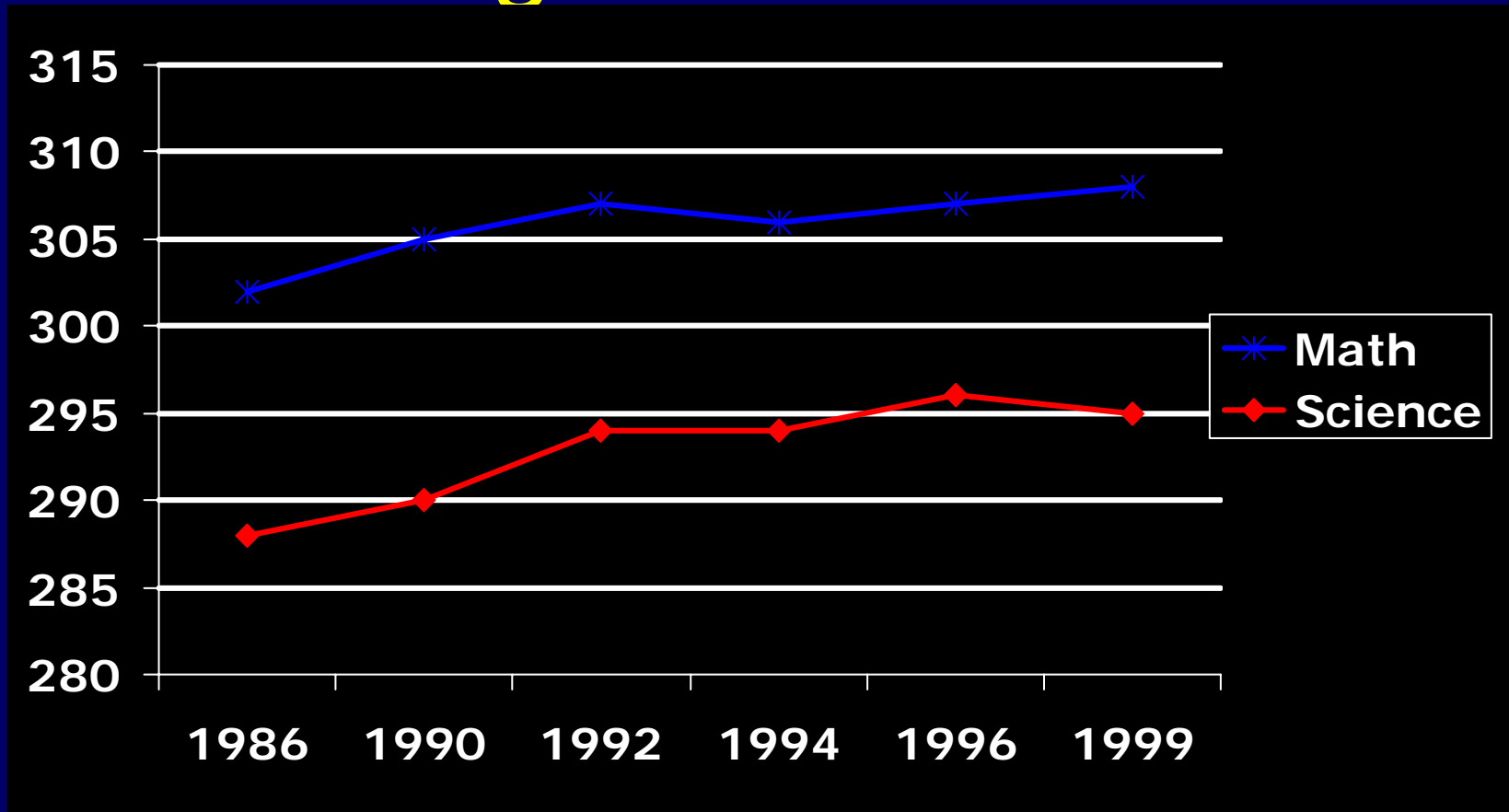
# GOOD TEACHING MATTERS

*University System of Georgia  
Education Trust, 2005*

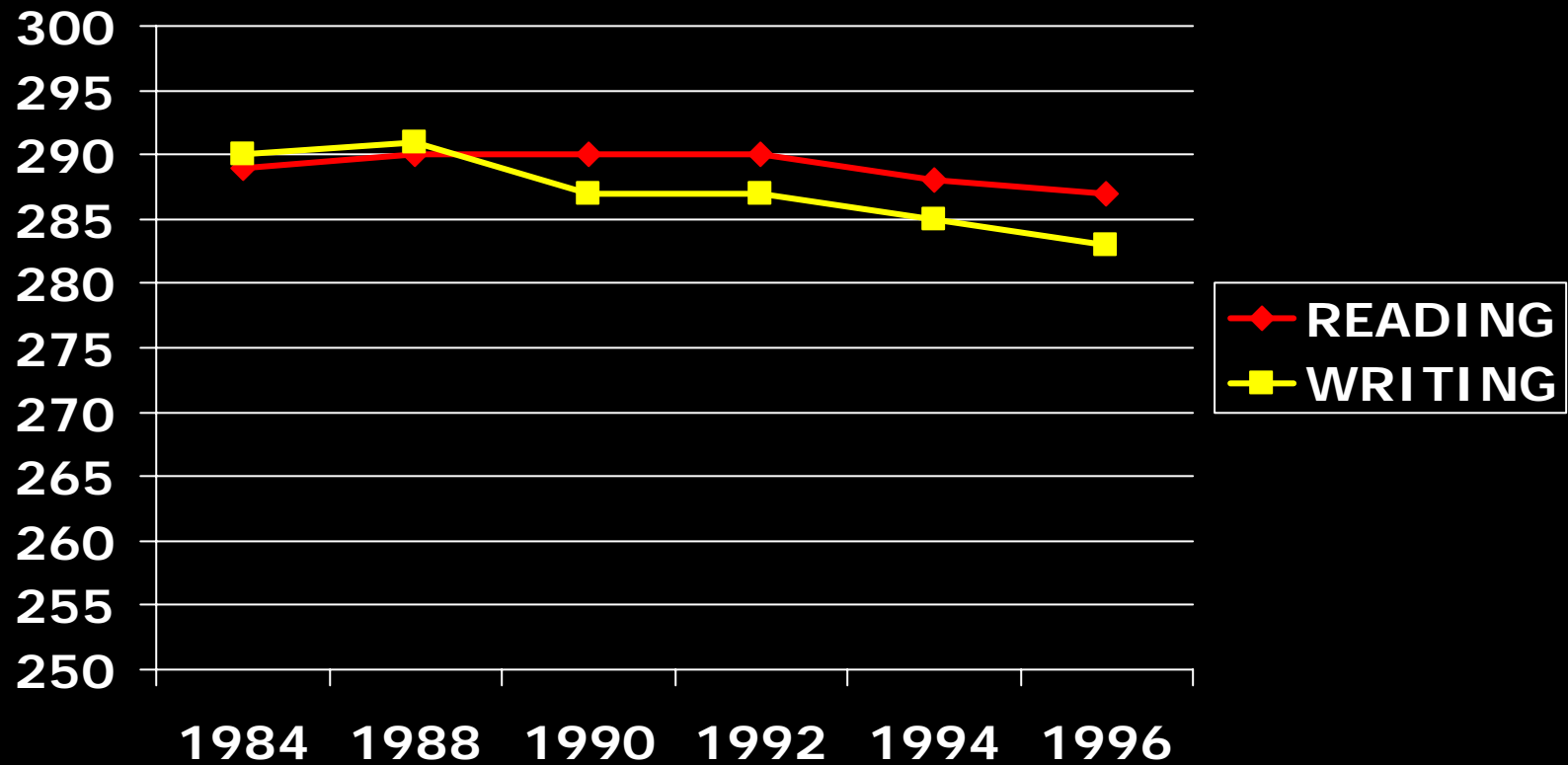


Nearly two decades of  
reform, but results not  
exactly spectacular.

# High School Achievement: Math and Science: NAEP Long-Term Trends



# HIGH SCHOOL ACHIEVEMENT: READING AND WRITING NAEP Long-Term Trends

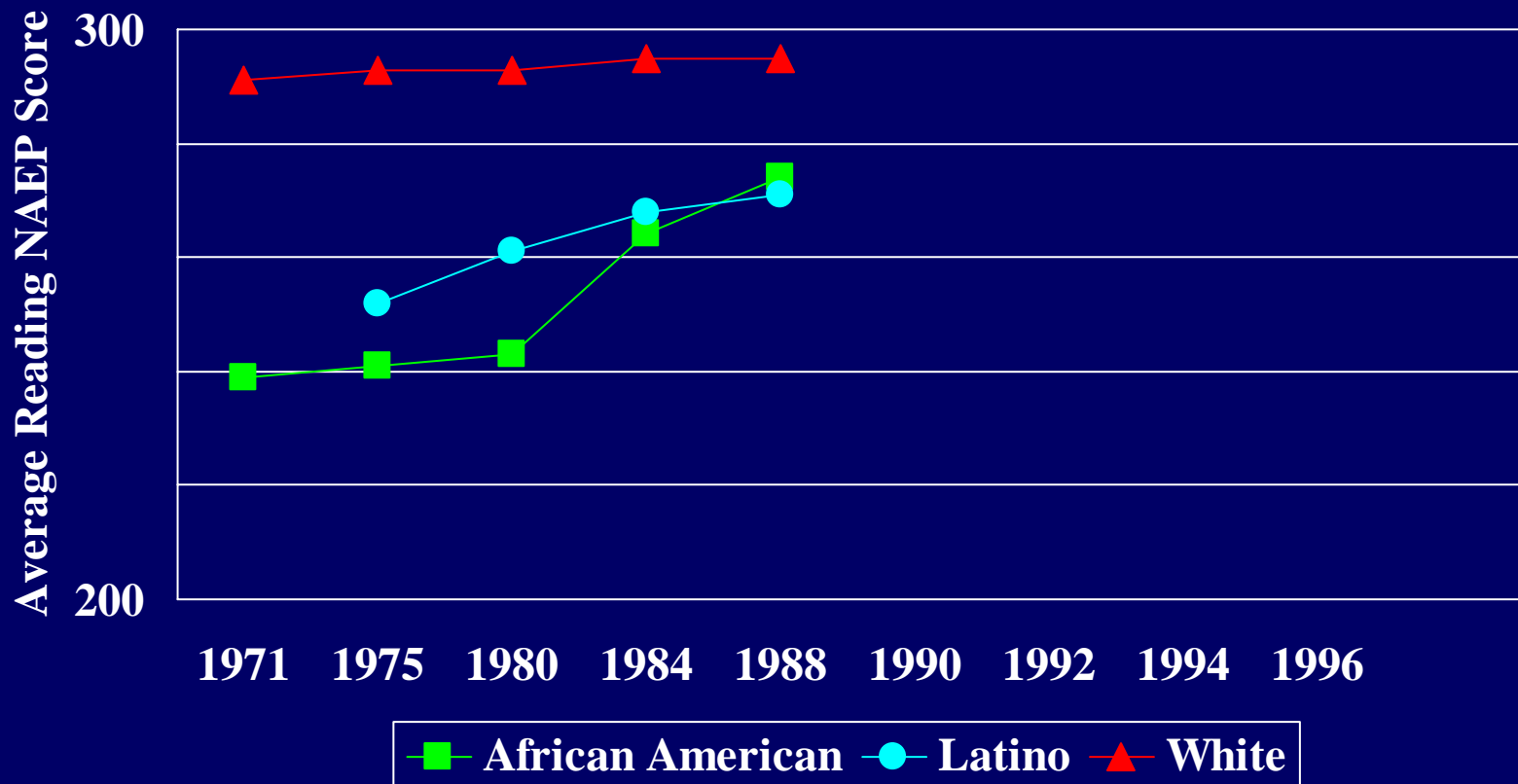


What about different groups of students?

# Gaps Narrow 1970-88

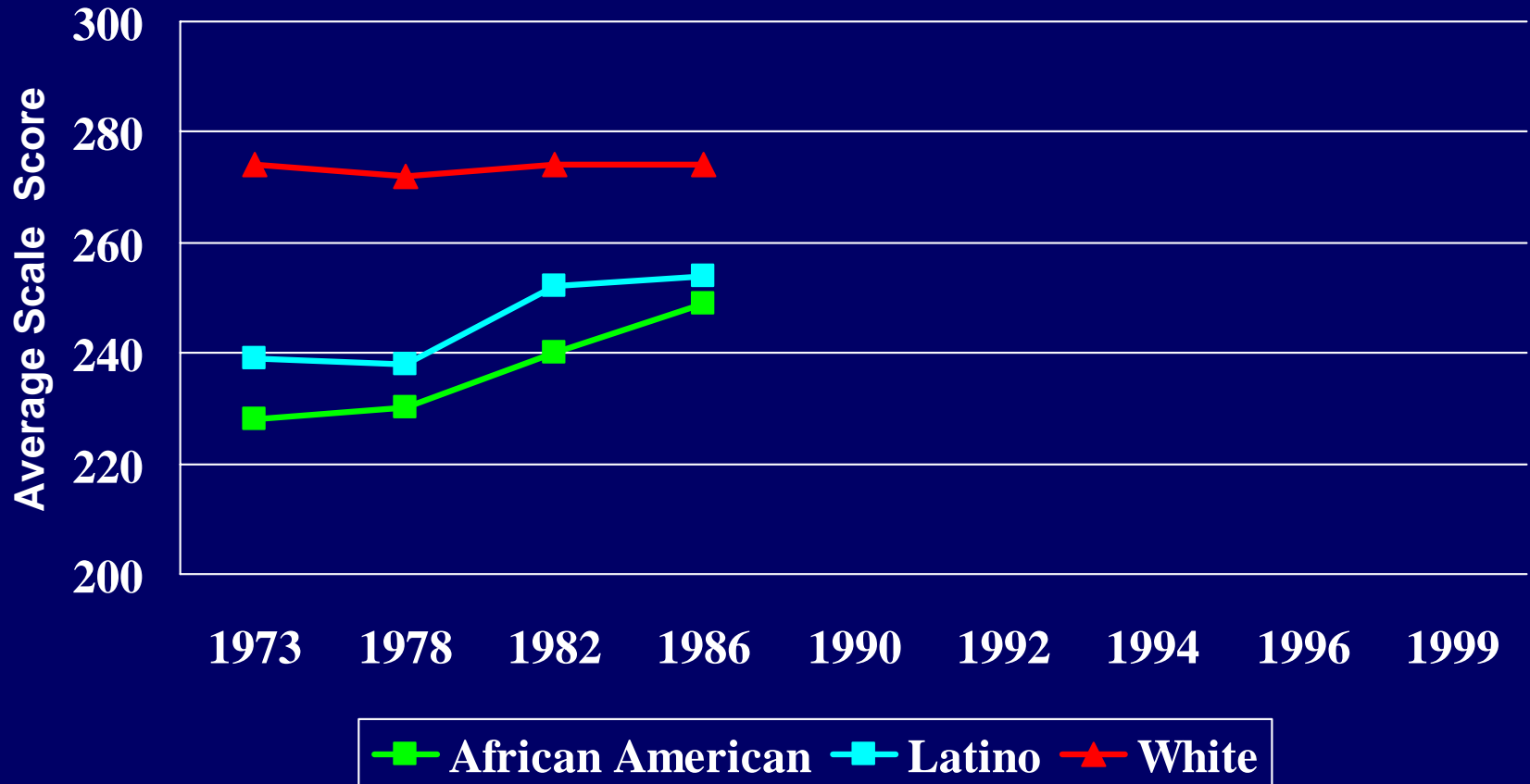
## NAEP Reading

### 17 Year-Olds



# Gaps Narrow 1973-86

## NAEP Math Scores, 13 Year-Olds

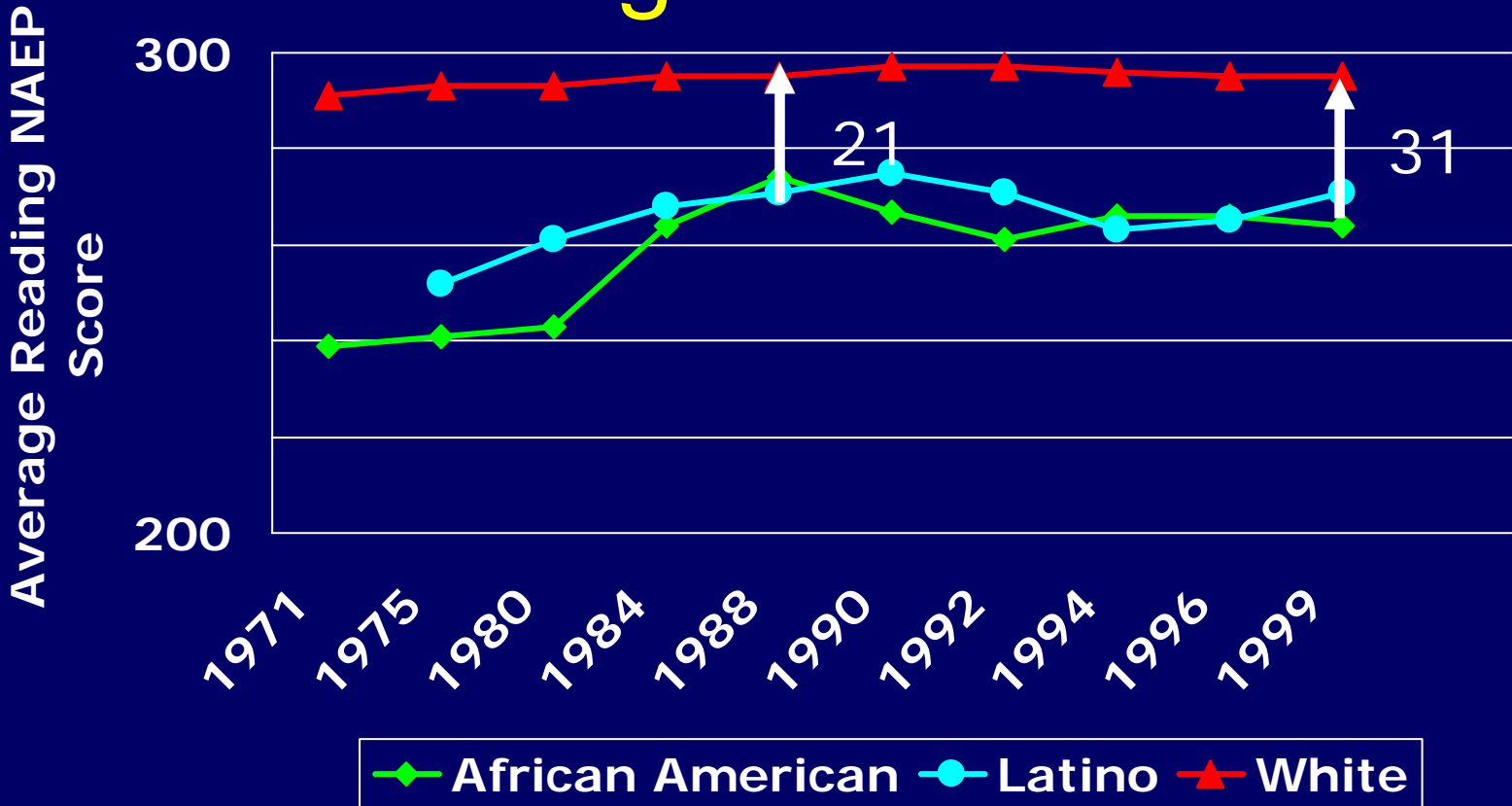


Between 1988-90, that  
progress came to a halt...and  
gaps began to widen once  
again.

# Gaps Narrow Then Mostly Widen

## Reading, 17 Year-Olds

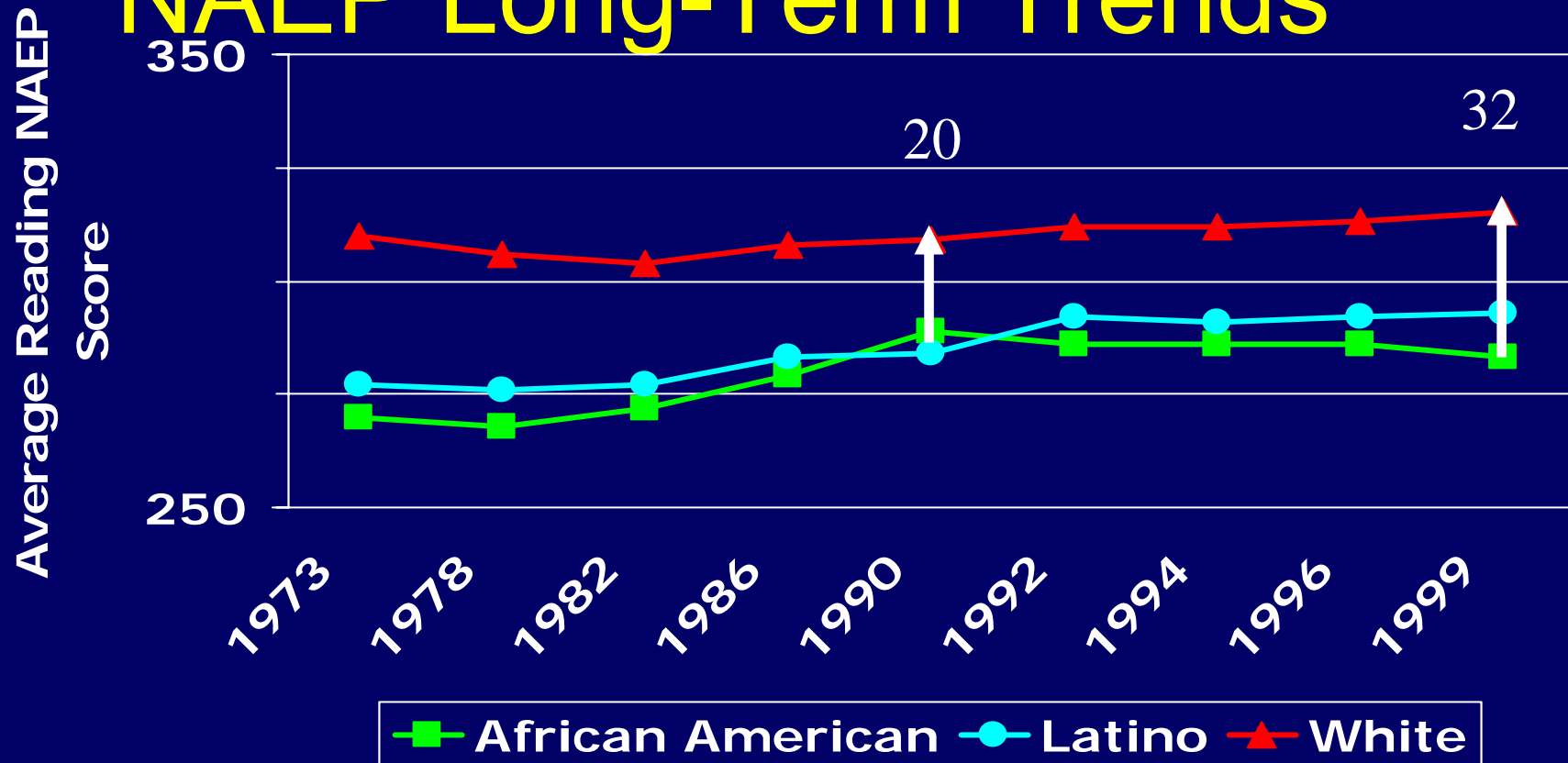
### NAEP Long-Term Trends



Source: US Department of Education, National Center for Education Statistics. *NAEP 1999 Trends in Academic Progress*. Washington, DC: US Department of Education, August 2000

# Gaps Narrow, Then Hold Steady or Widen: Math, 17 Year-Olds

## NAEP Long-Term Trends

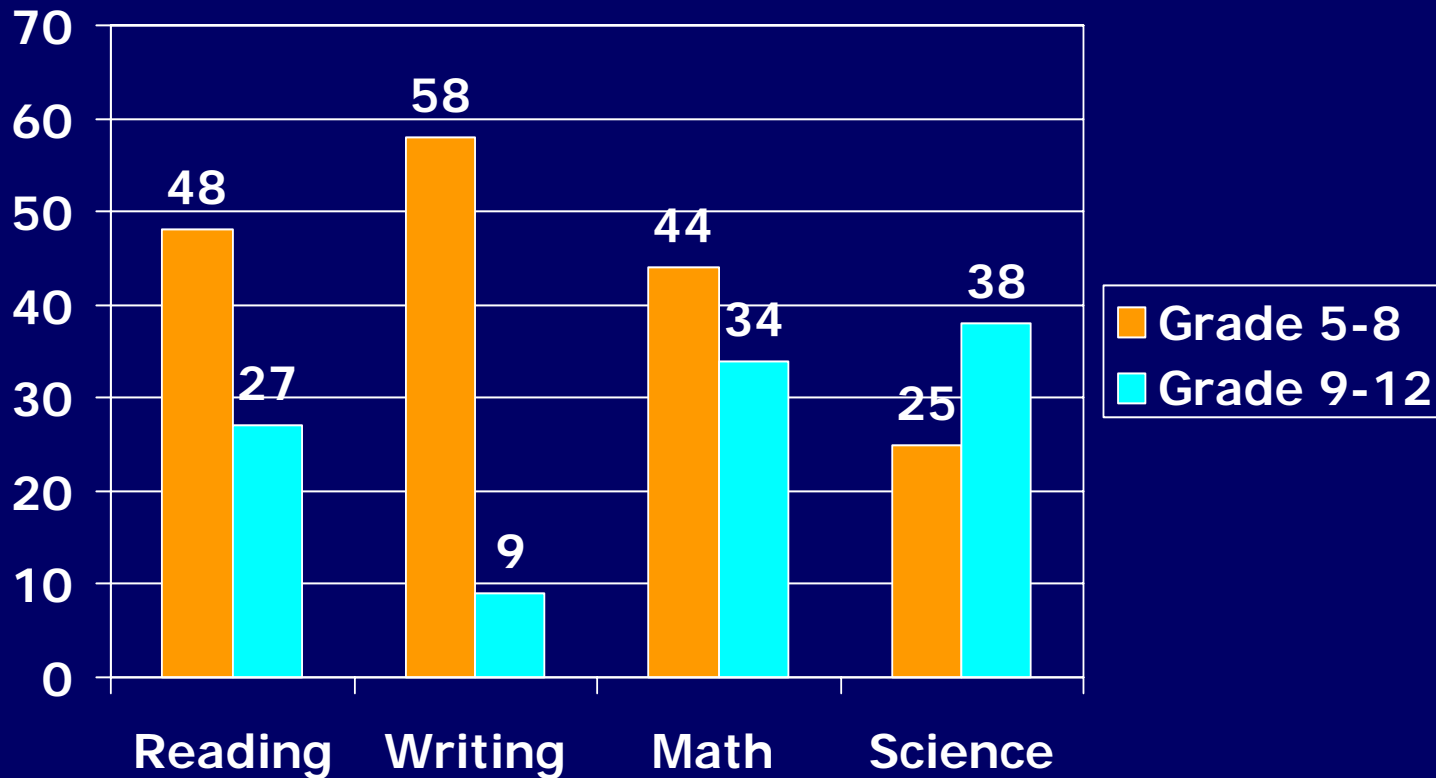


Source: US Department of Education, National Center for Education Statistics. *NAEP 1999 Trends in Academic Progress* (p. 108) Washington, DC: US Department of Education, August 2000

How much learning takes  
place at each level?

Students Make More  
Growth Grade 5 to 8  
than  
Grade 9 to 12

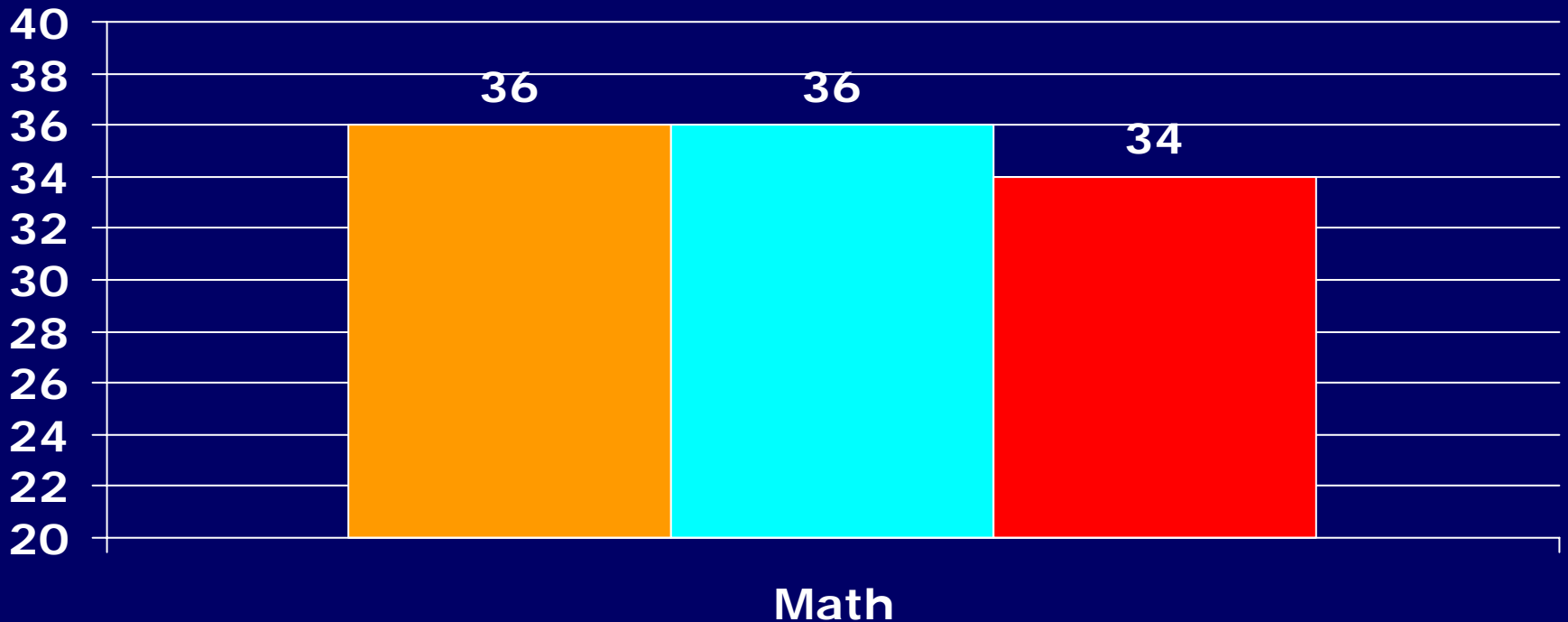
# Academic Growth Grades 5-8, 9-12



# Value Added in High School Declined During the Nineties

# Value Added Declining in High School Math...

Age 13-17 Growth

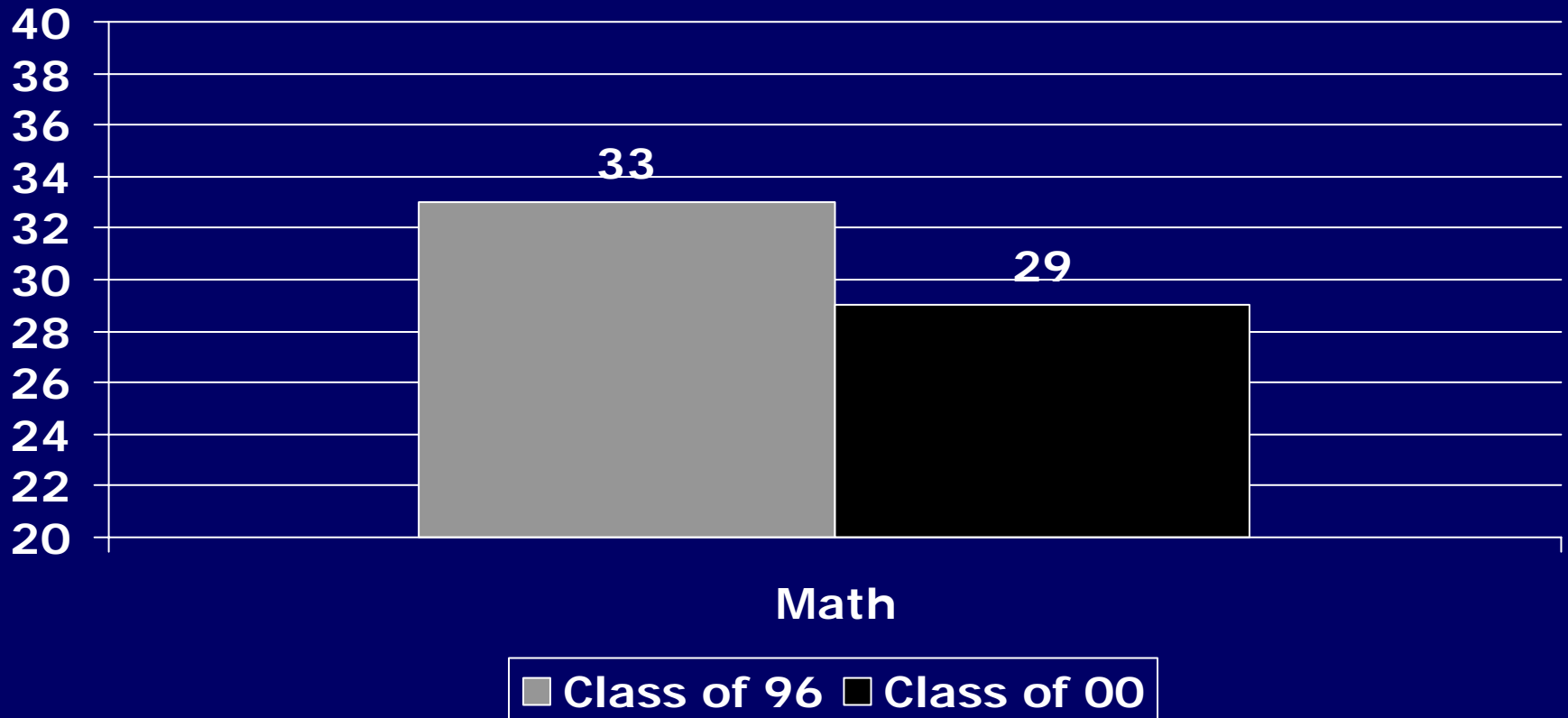


■ Class of '90 ■ Class of '94 ■ Class of '96

Source: NAEP 1999 Trends in Academic Progress

# ...Still

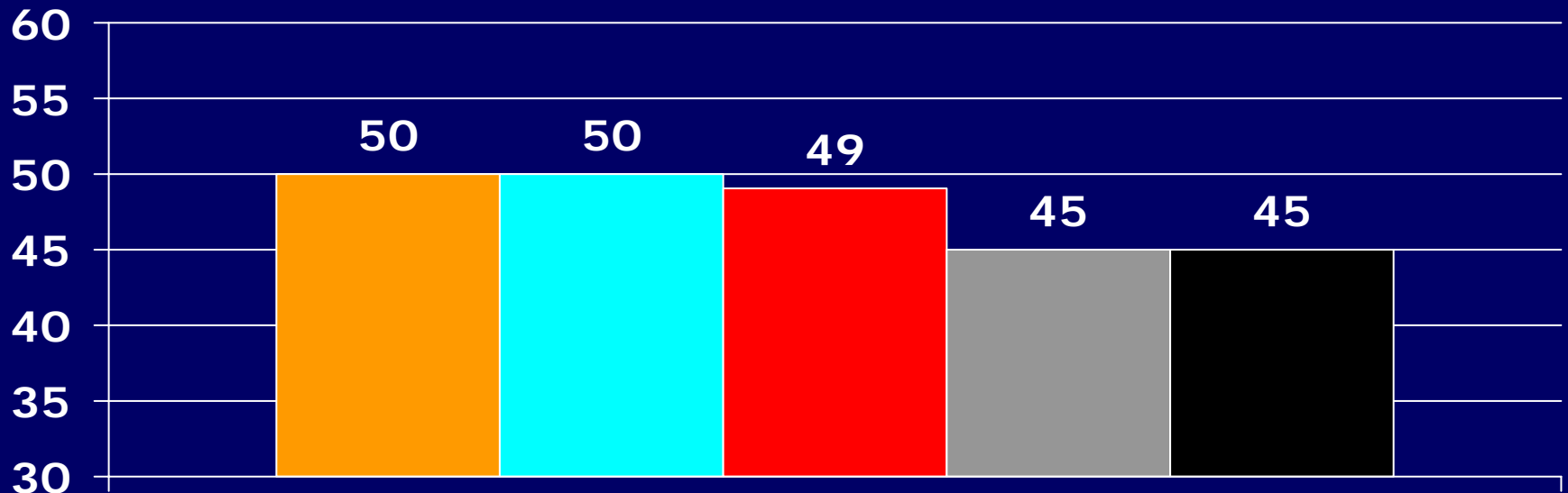
## Age 13-17 Growth



Source: Main NAEP 1996, 2000

# Value Added Declining in Middle School Math...

Age 9-13 Growth

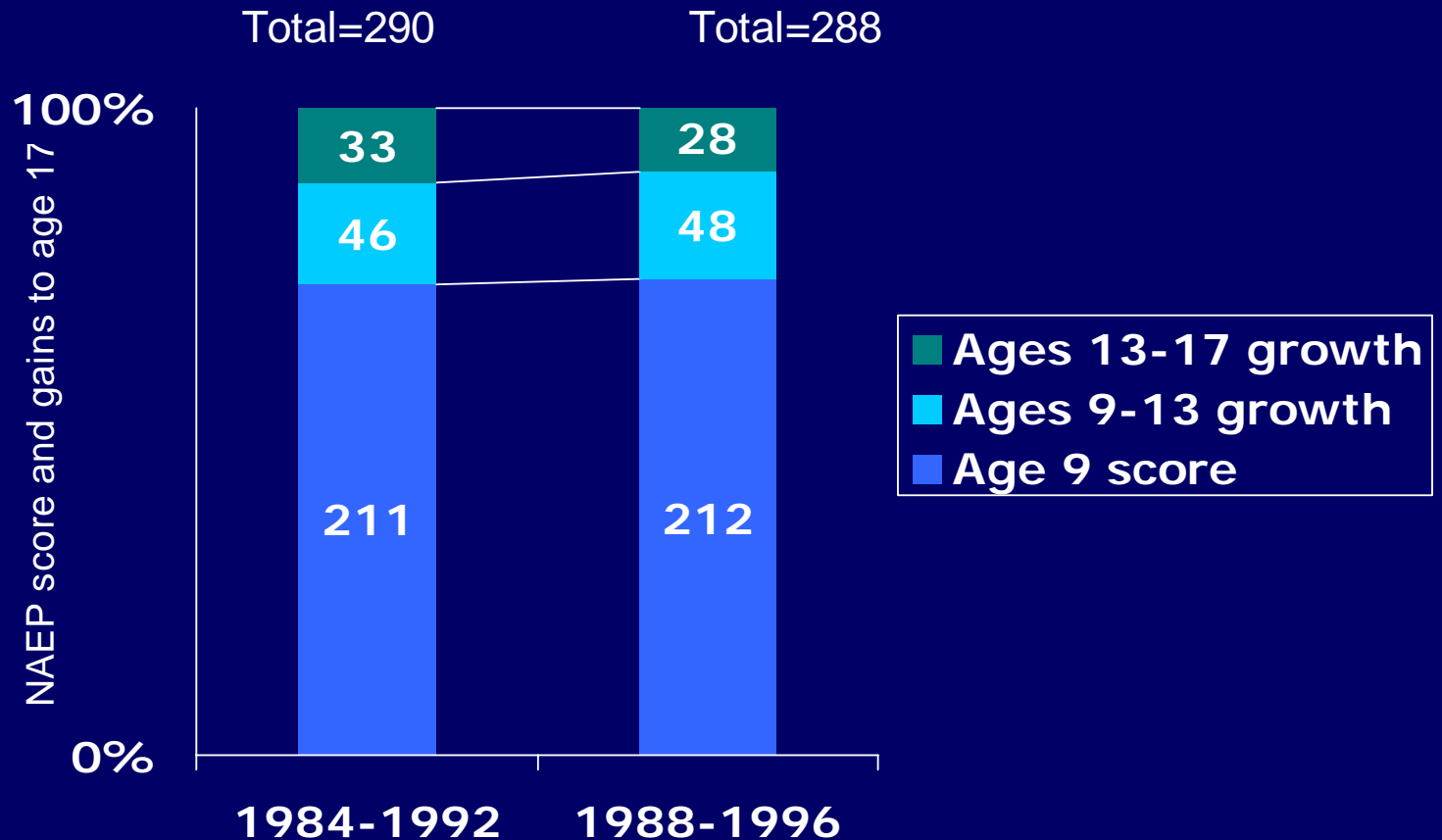


Math

■ 8th Graders '82 ■ 8th Graders '86 ■ 8th Graders '90  
■ 8th Graders '94 ■ 8th Graders '96

Source: NAEP 1999 Trends in Academic Progress

# Reading: Students Entering Better Prepared, But Leaving Worse

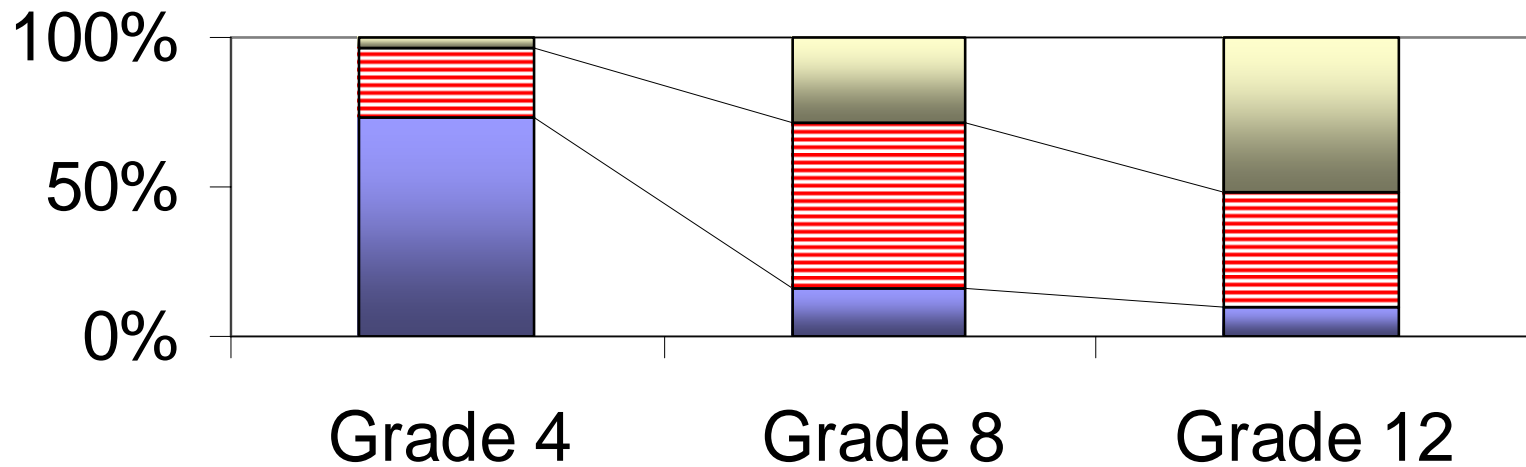


Hormones?

Students in Other  
Countries Gain far More  
in Middle and High School

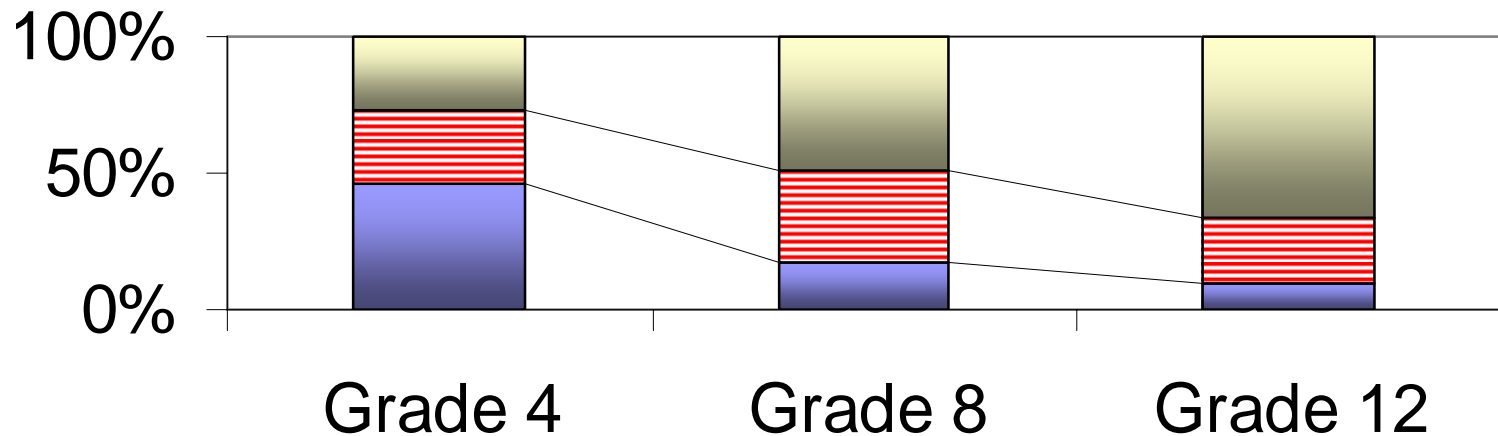
TIMSS

# Nations' Average Science Performance Compared with the U.S.



- Nations scoring higher than the U.S.
- ▨ Nations scoring the same as the U.S.
- Nations scoring below the U.S.

## Nations' Average Mathematics Performance Compared with the U.S.



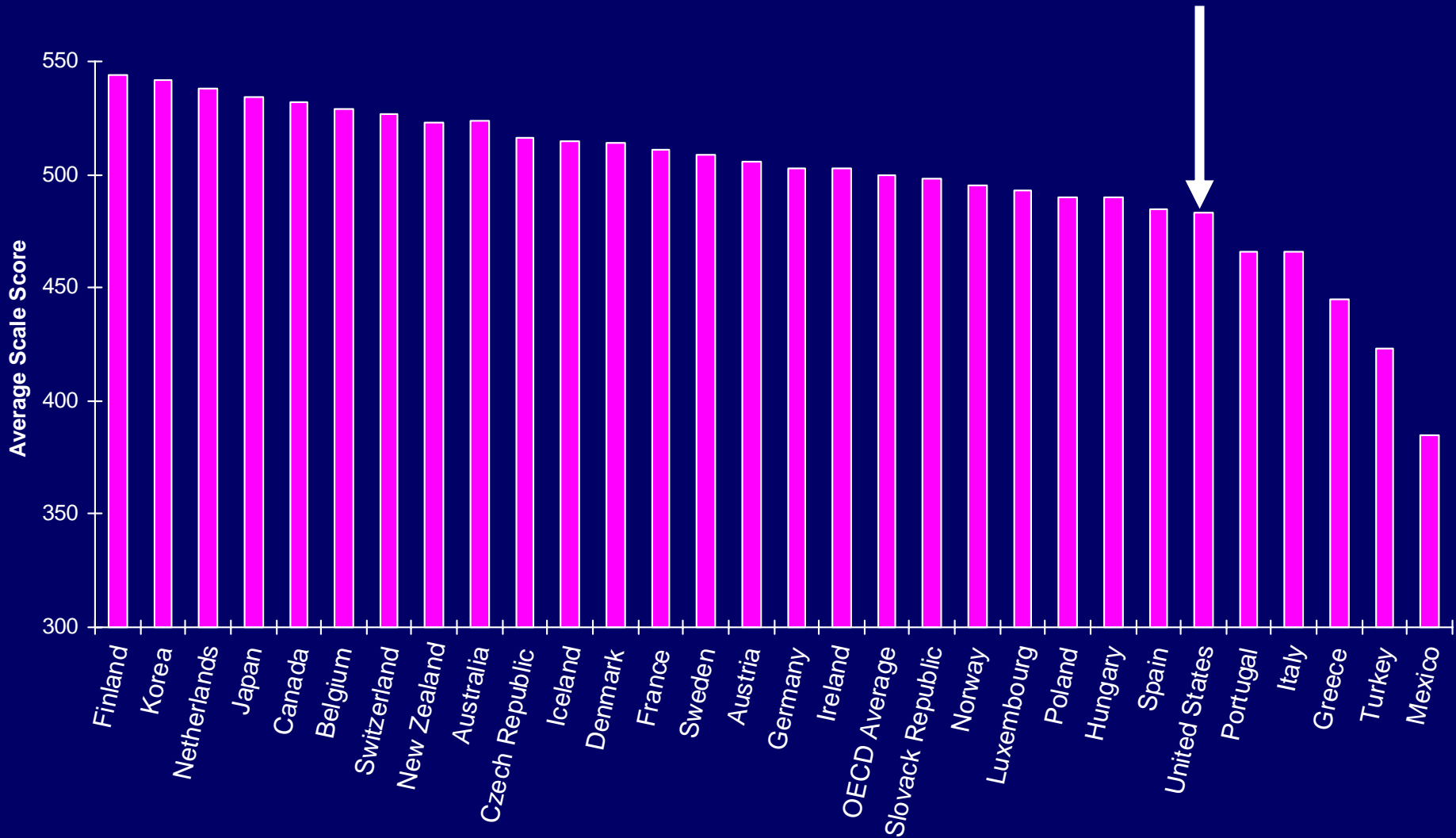
- Nations' scoring higher than the U.S.
- ▨ Nations scoring the same as the U.S.
- Nations scoring below the U.S.

**PISA**

# US 15 Year-Olds Rank Near Middle Of The Pack Among 32 Participating Countries: 1999

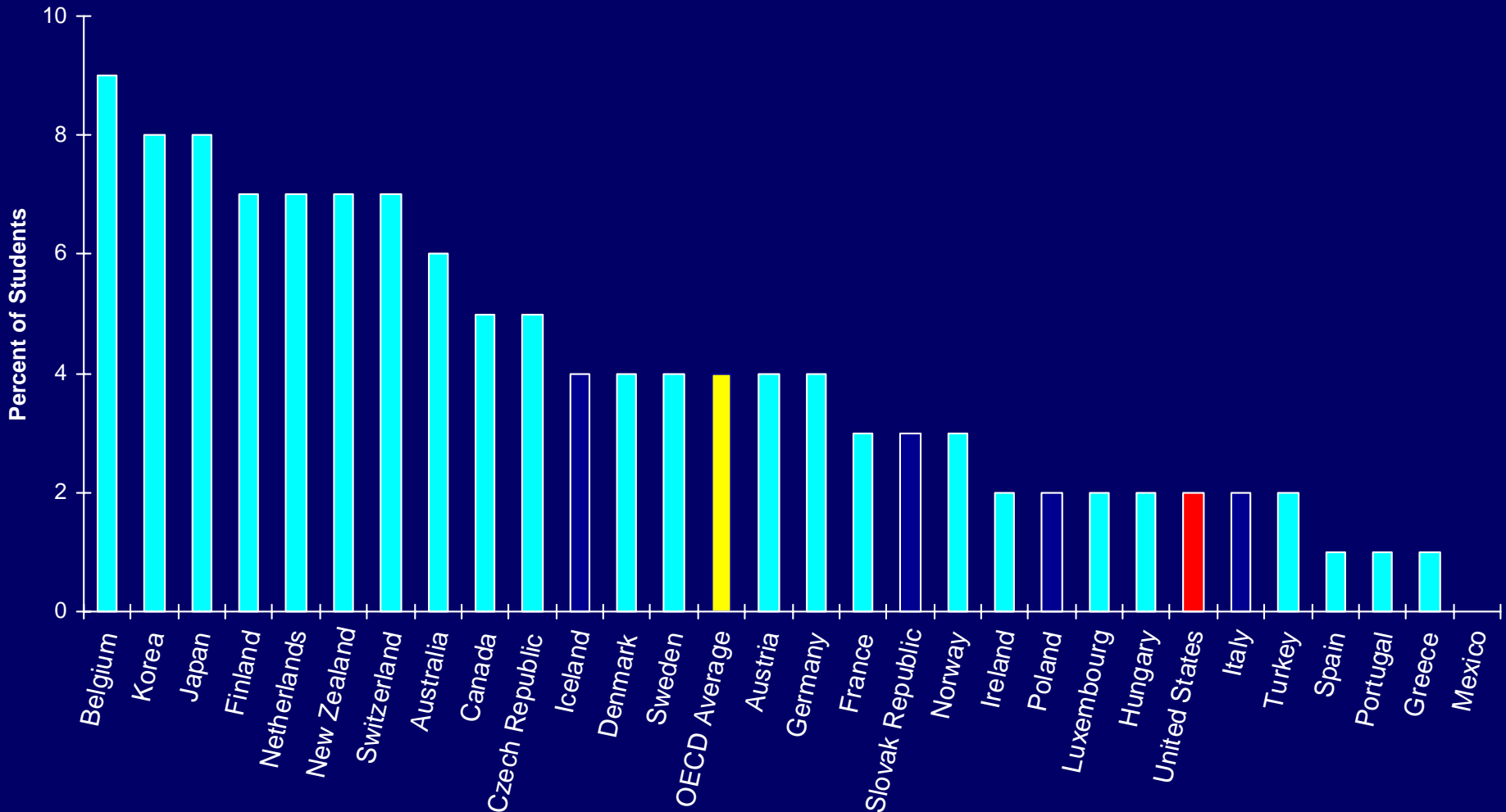
	<b>U.S. RANK</b>
READING	15TH
MATH	19TH
SCIENCE	14TH

# 2003: U.S. Ranked 24<sup>th</sup> out of 29 OECD Countries in Mathematics



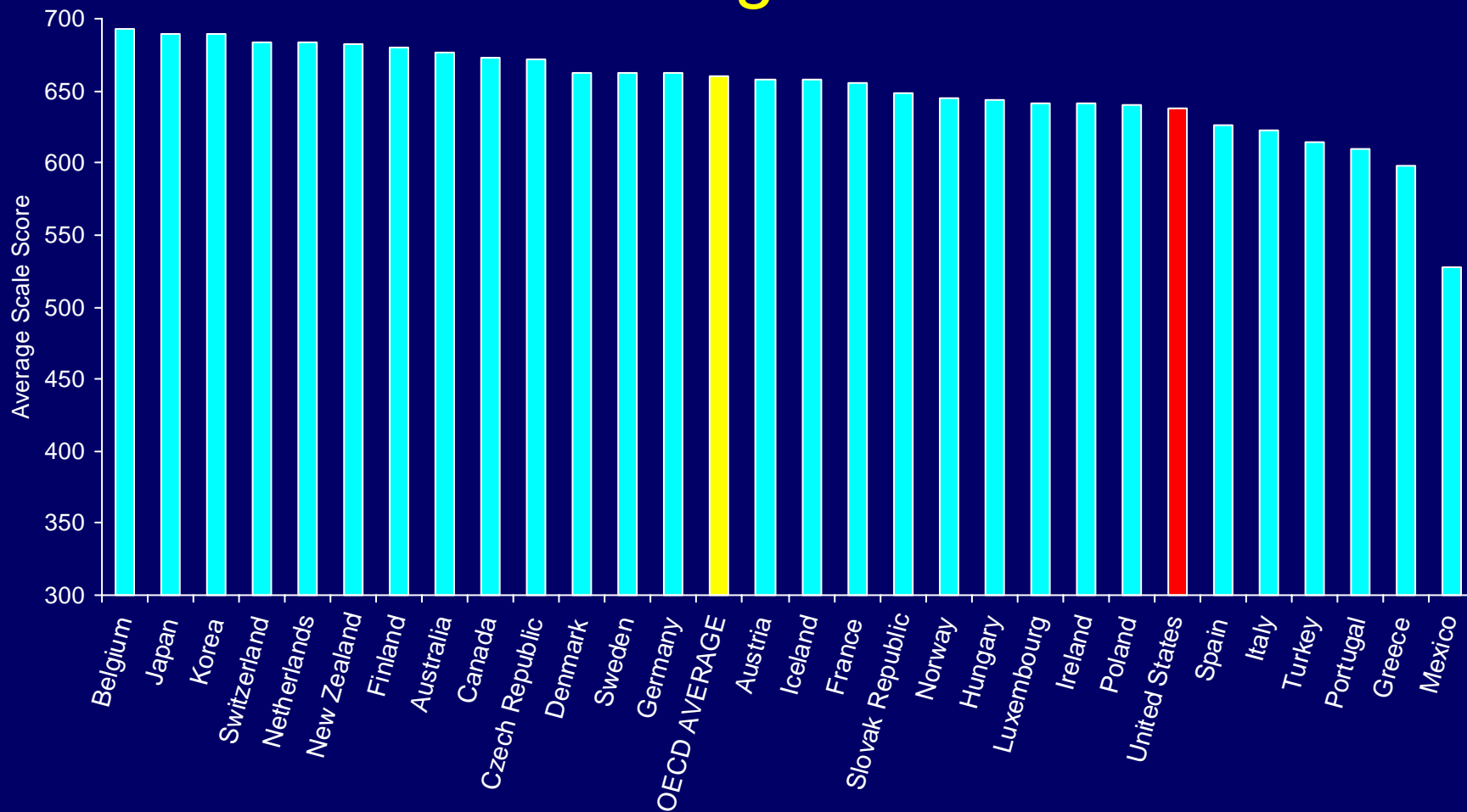
Problems are not limited to our  
high-poverty and high-minority  
schools . . .

# U.S. Ranks Low in the Percent of Students in the Highest Achievement Level (Level 6) in Math



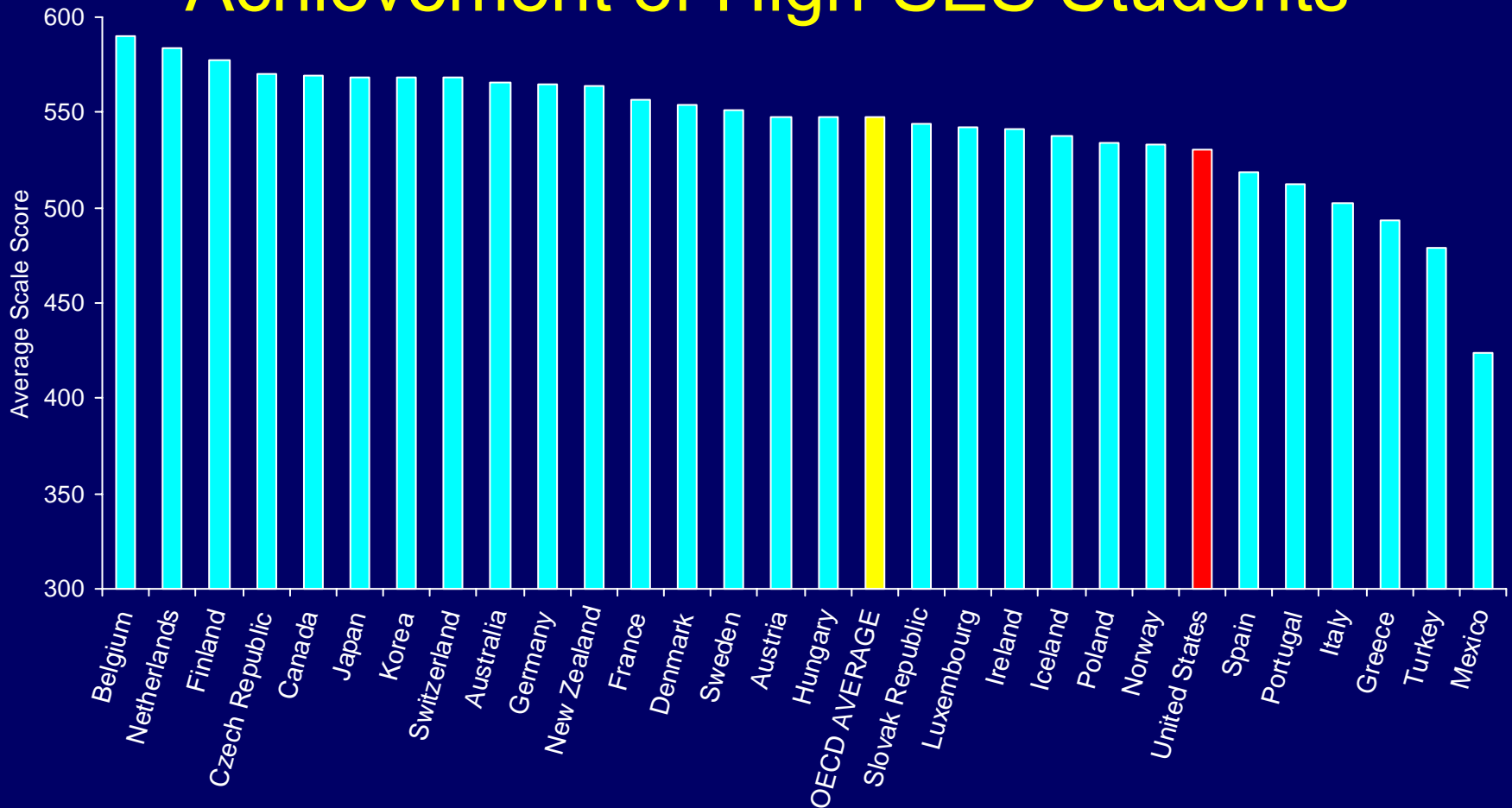
**Source:** Organization for Economic Cooperation and Development (OECD), PISA 2003 Results, data available at <http://www.oecd.org/>

# U.S. Ranks 23<sup>rd</sup> out of 29 OECD Countries in the Math Achievement of the Highest-Performing Students\*



\* Students at the 95<sup>th</sup> Percentile

# U.S. Ranks 23<sup>rd</sup> out of 29 OECD Countries in the Math Achievement of High-SES Students



**Source:** Organization for Economic Cooperation and Development (OECD), PISA 2003 Results, data available at <http://www.oecd.org/>

One measure on which we  
rank high?

Inequality!

# Performance Of U.S. 15 Year-Olds Highly Variable

	PISA 5 <sup>th</sup> –95 <sup>th</sup> Gap Rank*
<b>Reading</b> (interpreting text)	<b>3</b>
<b>Mathematical Literacy</b>	<b>6 (tie)</b>
<b>Science Literacy</b>	<b>7</b>

**\*Of 27 OECD countries**

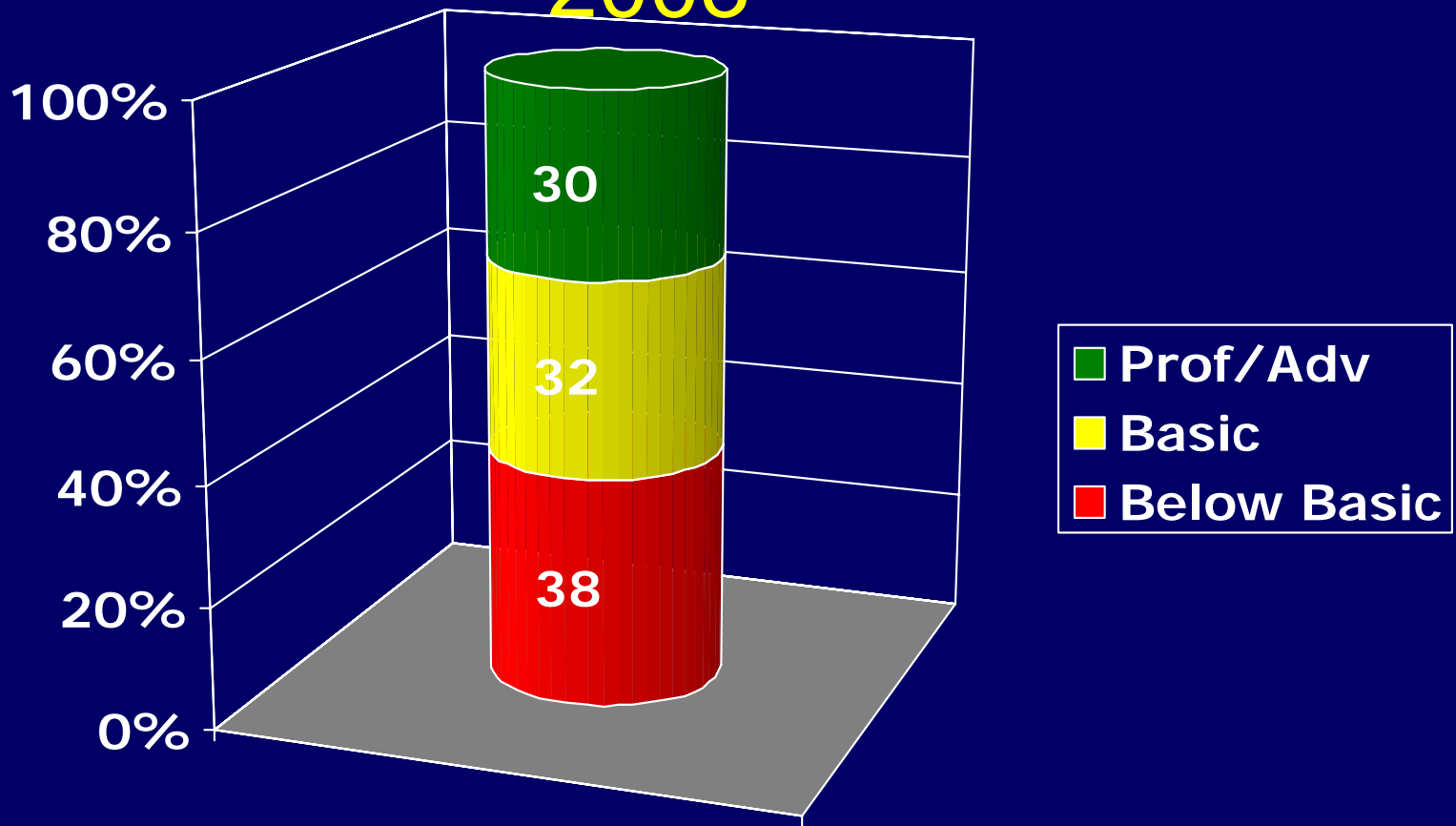
Source: OECD, *Knowledge and Skills for Life: First Results From PISA 2000, 2001.*

These gaps between groups  
clear in our own national data.

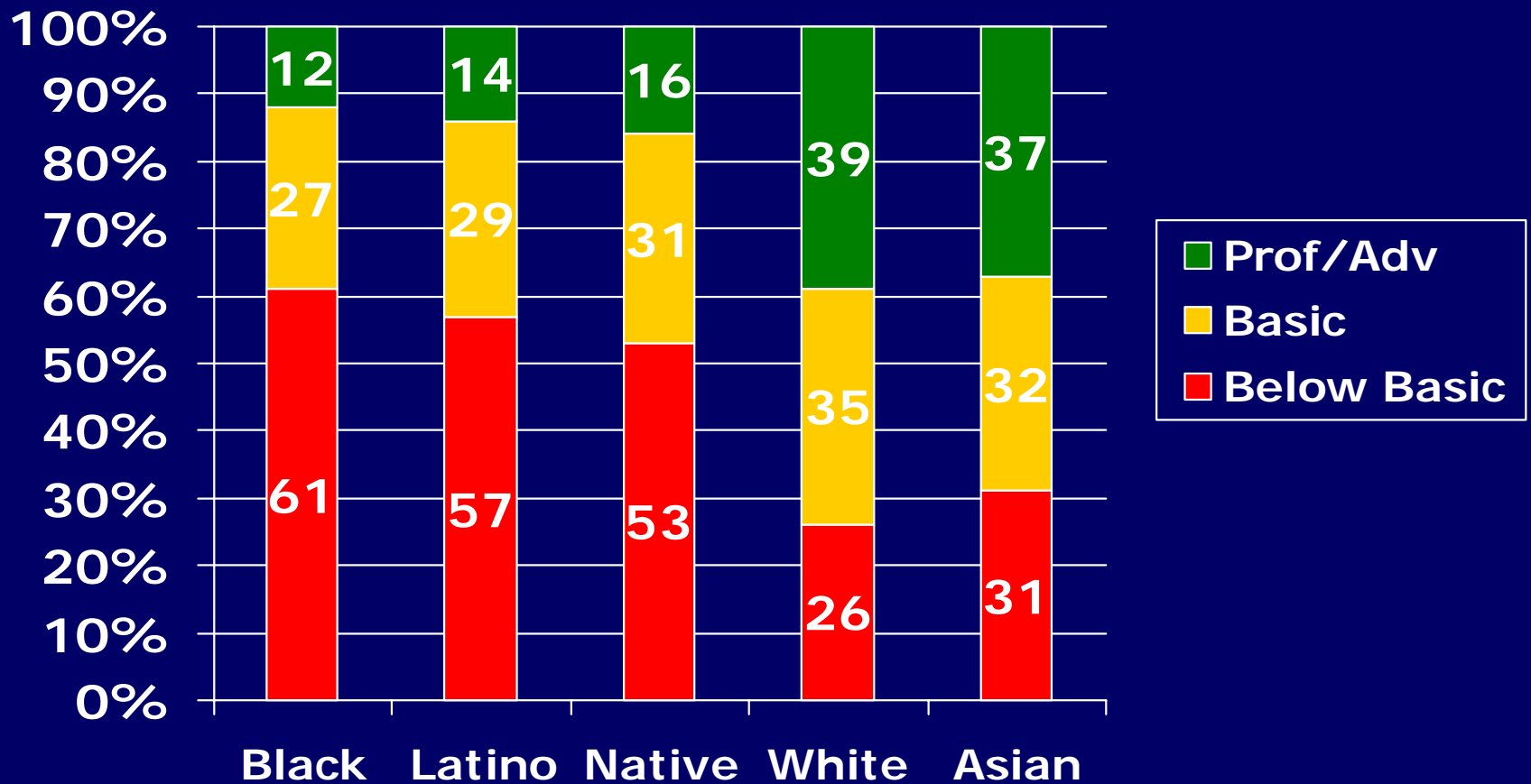
# Where Are We Now?

## 4th Grade Reading All Students

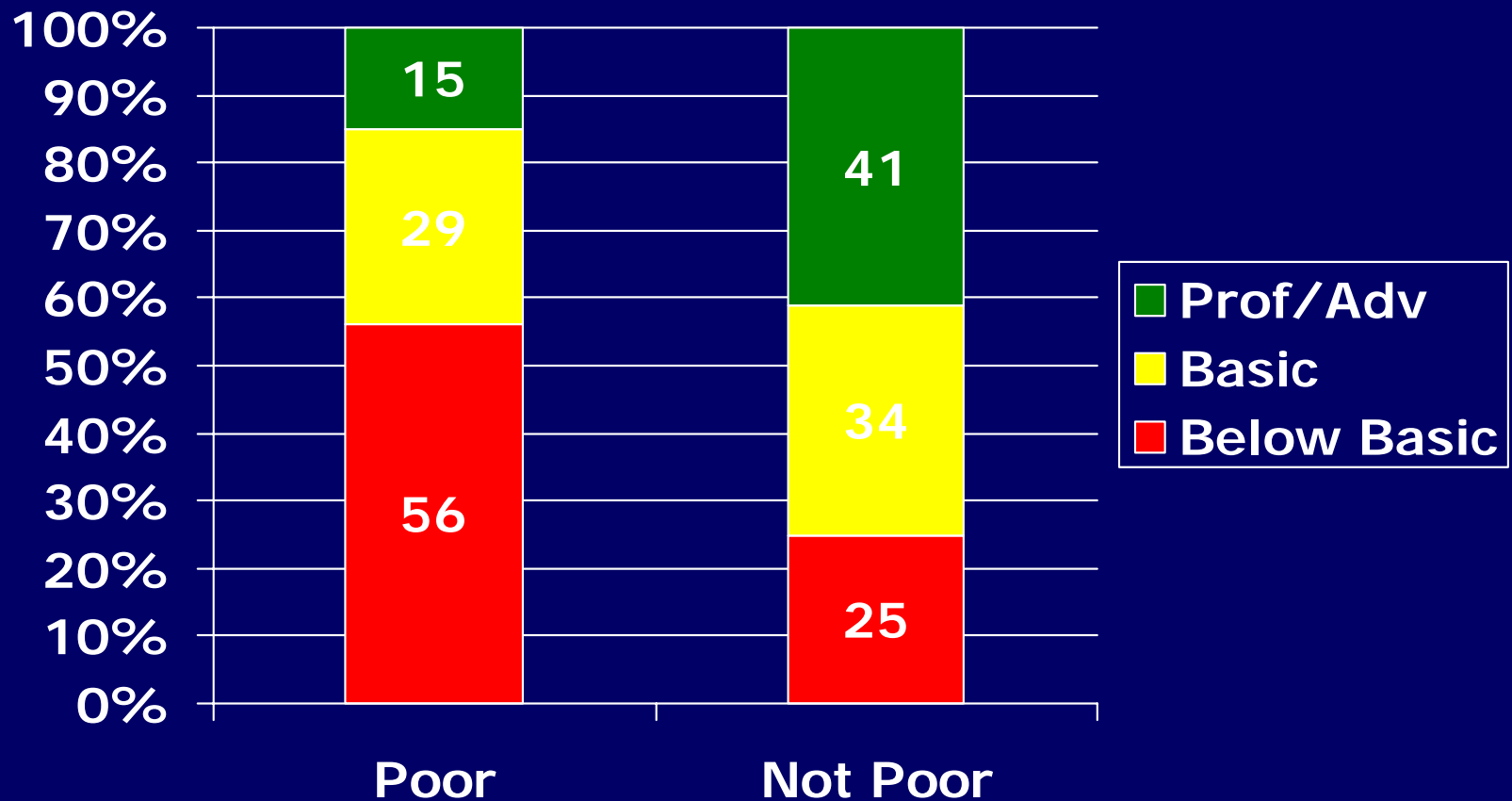
### 2003



# By Race, Ethnicity NAEP 4th Grade Reading 2003

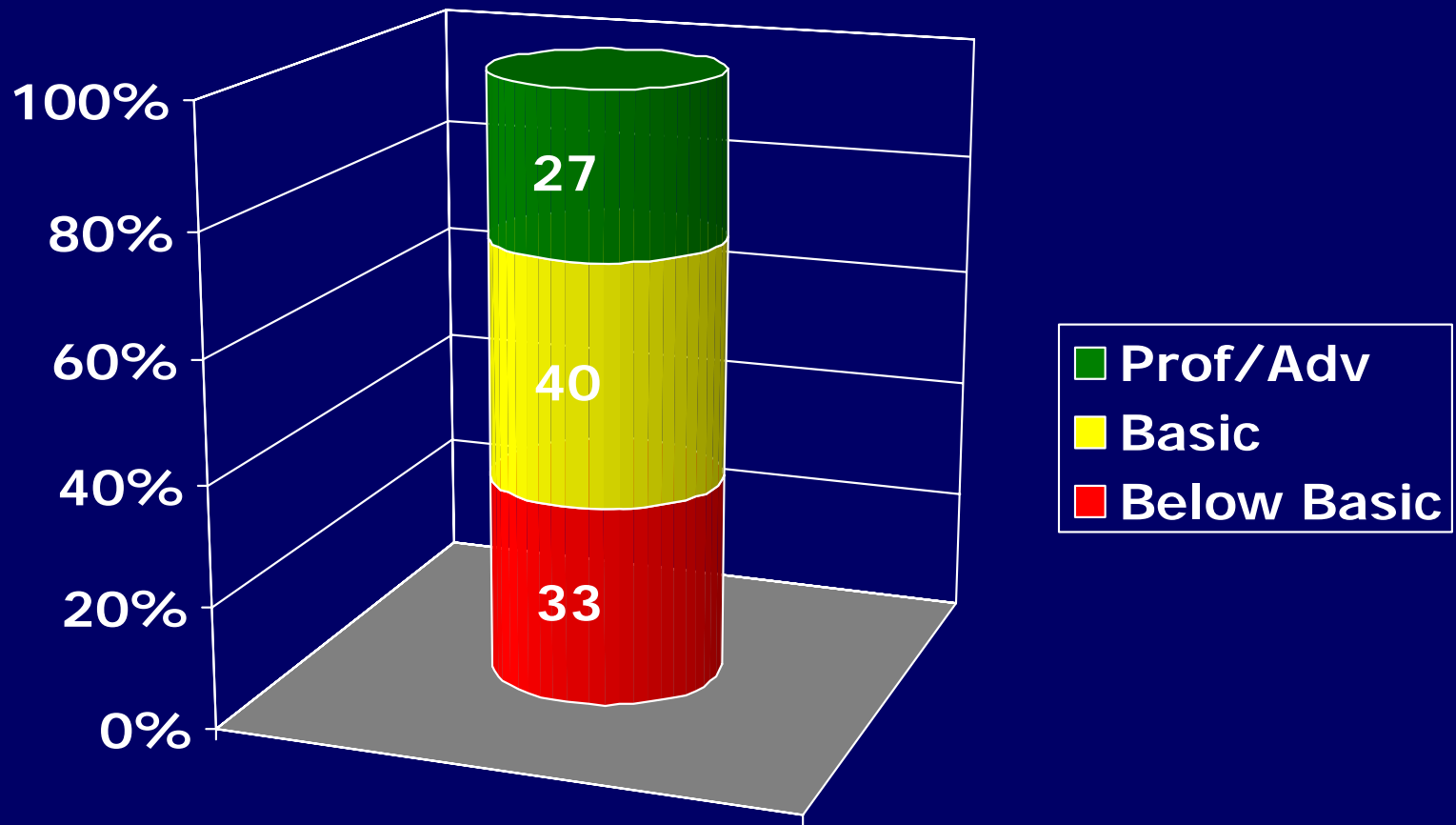


# By Family Income NAEP 4th Grade Reading 2003

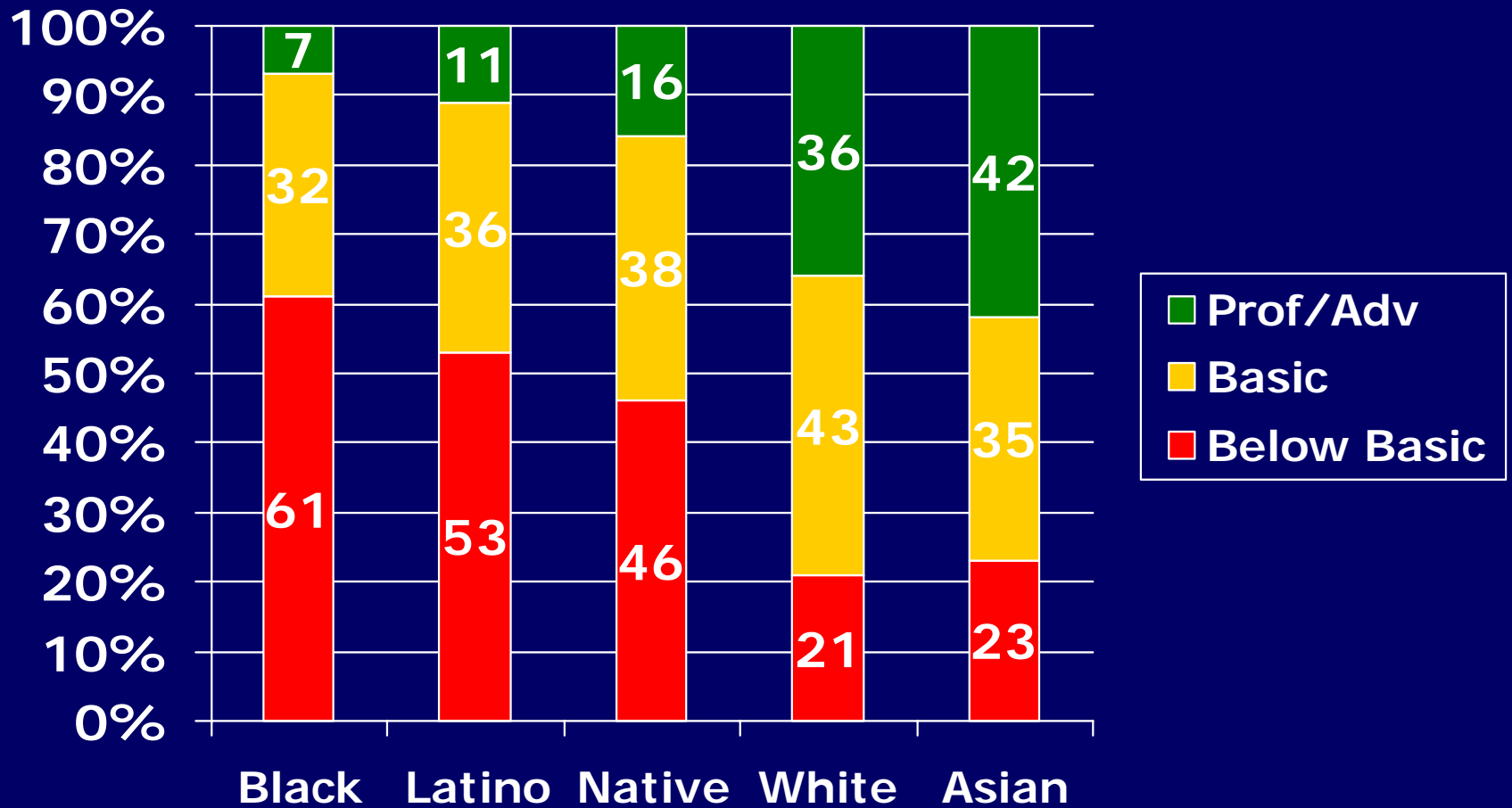


# Where Are We Now?

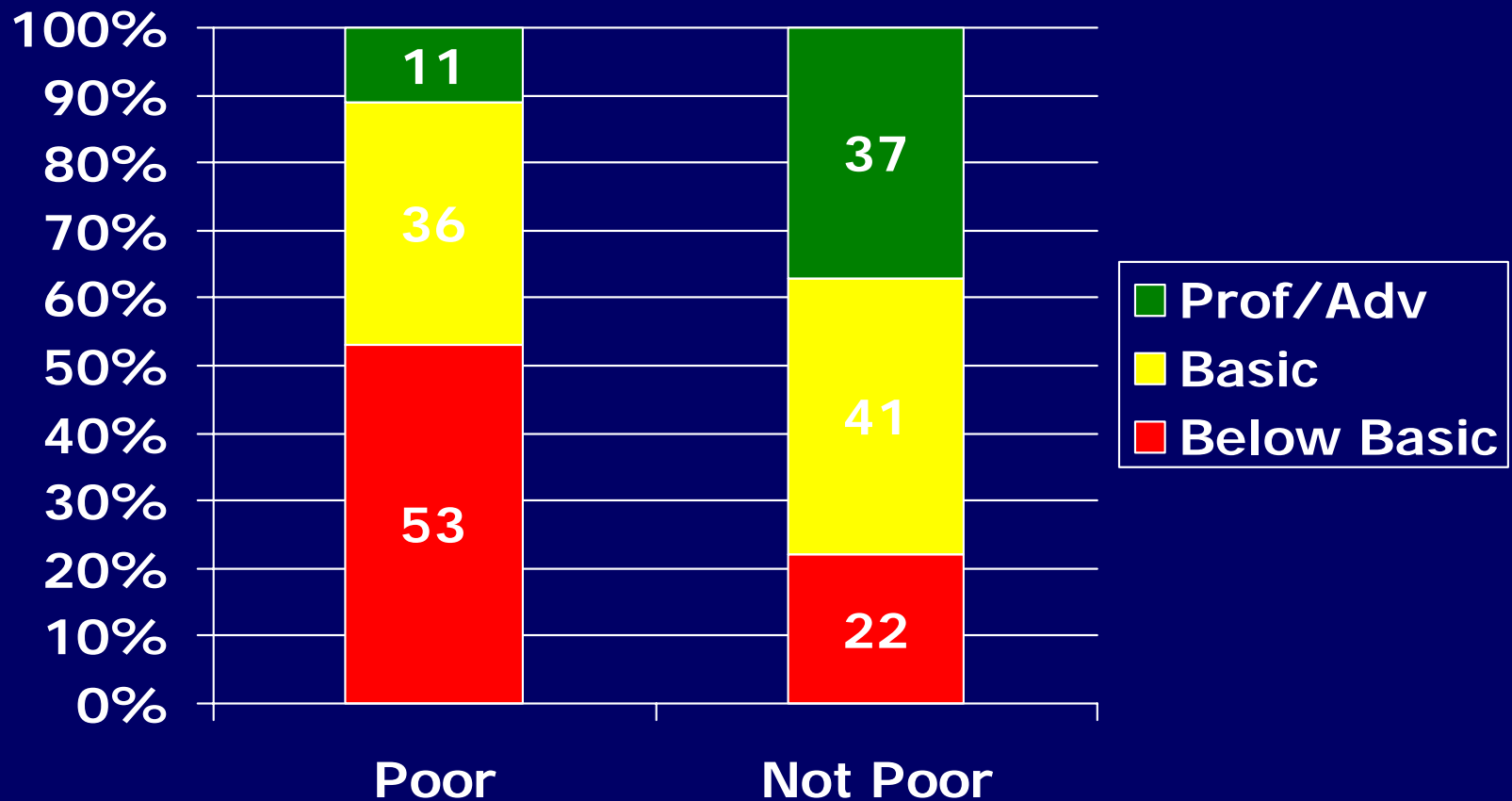
## 8th Grade Math All Students 2003



# By Race, Ethnicity NAEP 8th Grade Math 2003

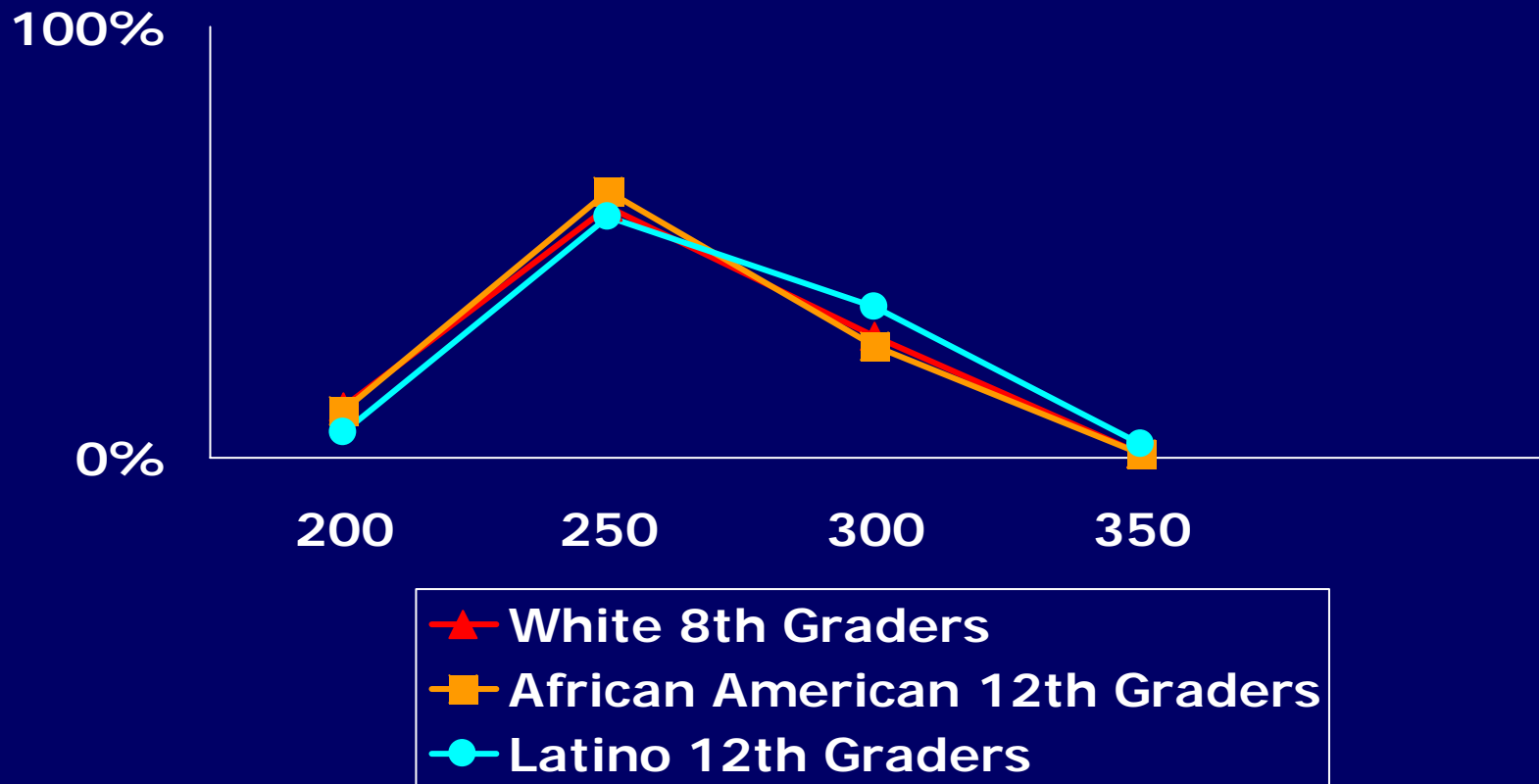


# By Family Income NAEP 8th Grade Math 2003

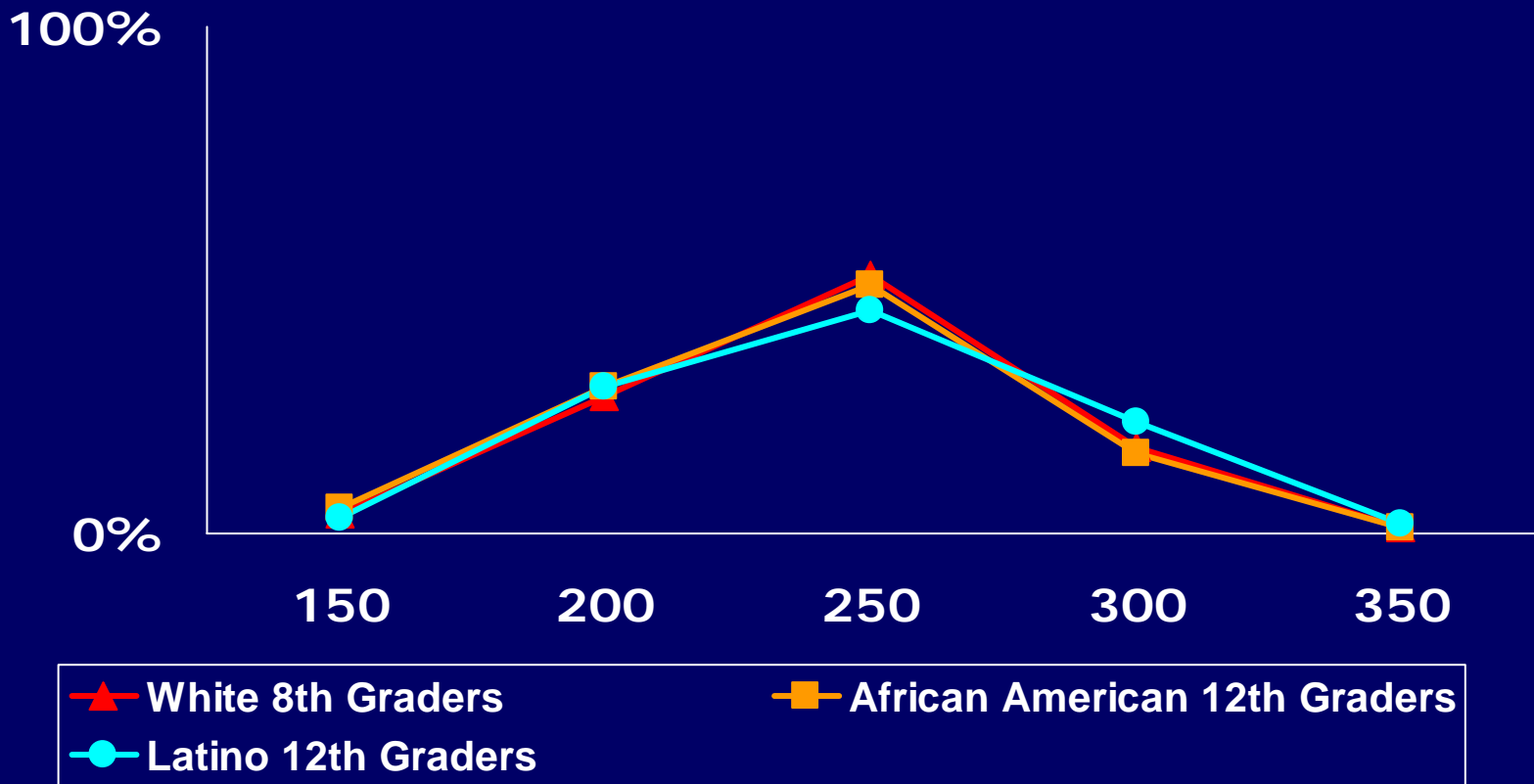


By end of high school?

# African American and Latino 17 Year Olds Do Math at Same Levels As White 13 Year Olds

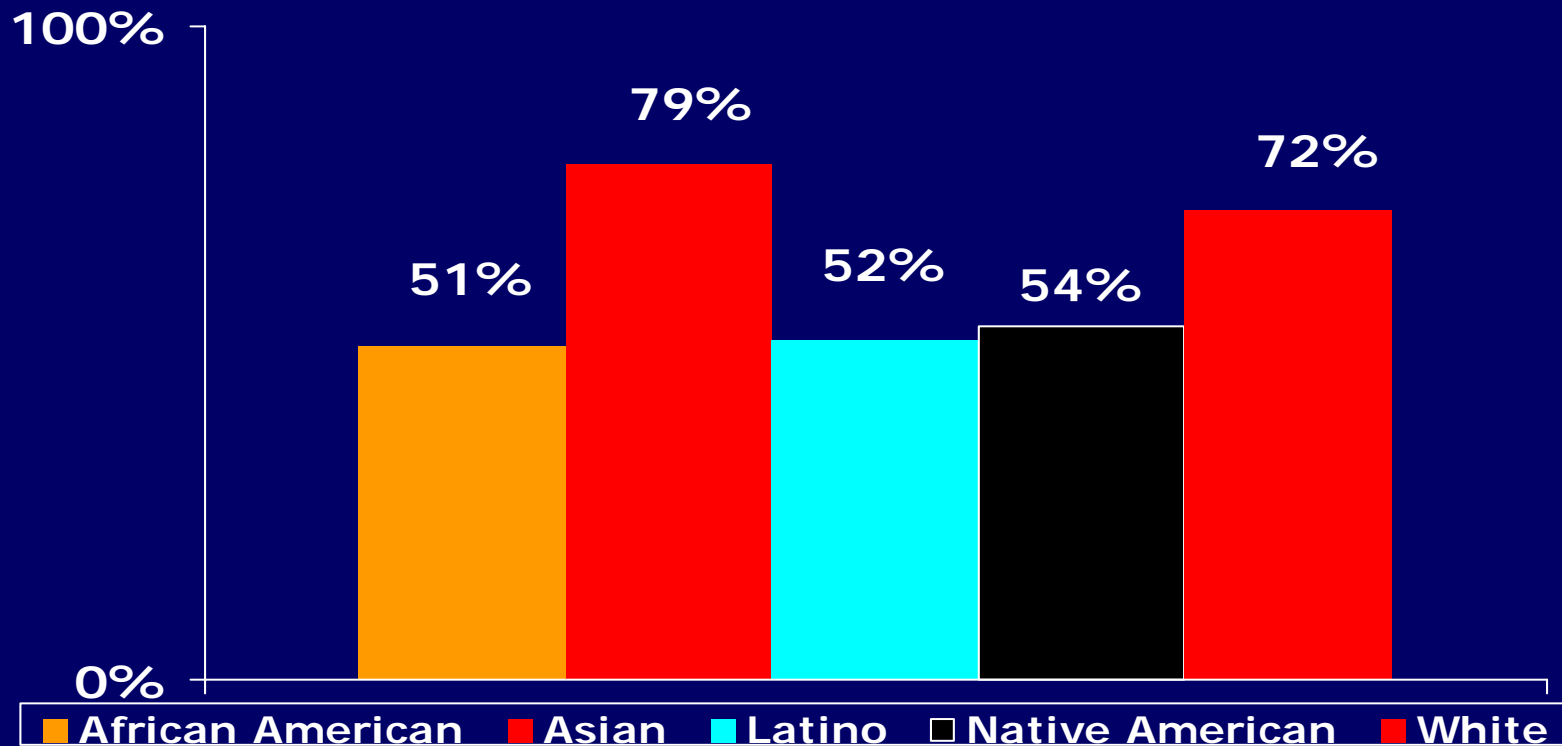


# African American and Latino 17 Year Olds Read at Same Levels as White 13 Year Olds



These, of course, are the students who remain in school through the senior year.

# 9<sup>th</sup> Graders Complete High School At Different Rates, 2001



**Source:** Jay P. Greene and Greg Forster, "Public High School Graduation and College Readiness Rates in the United States," Manhattan Institute for Policy Research, September 2003.

Among students who do graduate, most go immediately on to college.

# Most High School Grads Go On To Postsecondary Within 2 Years

Entered Public 2-Year Colleges	26%
Entered 4-Year Colleges	45%
Other Postsecondary	4%
<b>Total</b>	<b>75%</b>

**Source:** NELS: 88, Second (1992) and Third (1994) Follow up; in, USDOE, NCES, "Access to Postsecondary Education for the 1992 High School Graduates", 1998, Table 2.

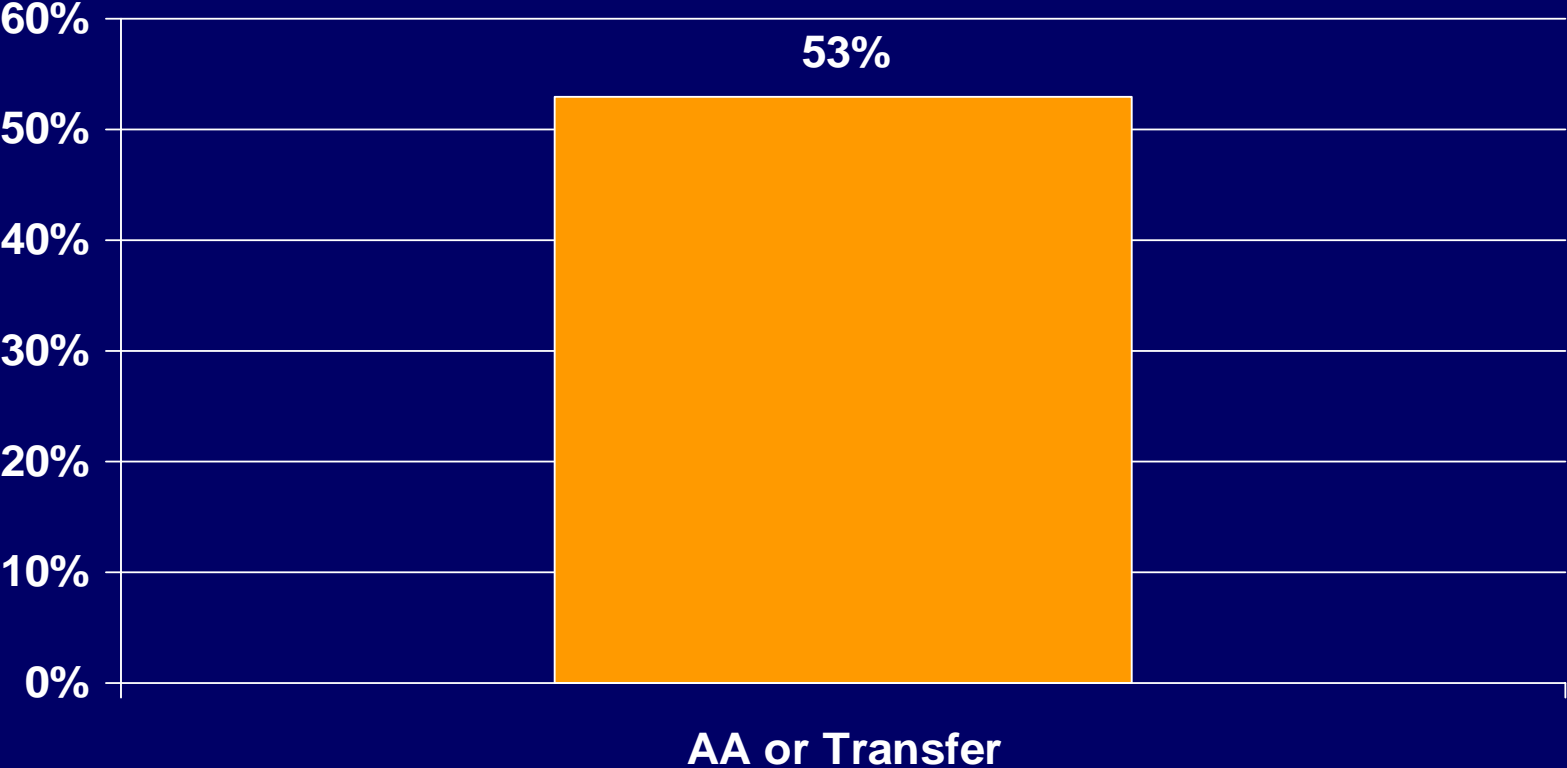
Unfortunately, many of the students who get to college don't succeed.

# College Freshmen Not Returning for Sophomore Year

<b>4-Year Colleges</b>	<b>26%</b>
<b>2-Year Colleges</b>	<b>45%</b>

**Source:** Tom Mortensen, Postsecondary Education Opportunity, No. 134, August 2003.  
Analysis of ACT's Institutional Data Questionnaire.

# Community College Students Seeking Assoc. Degree or More Who Receive Degree or Transfer within 8 Years

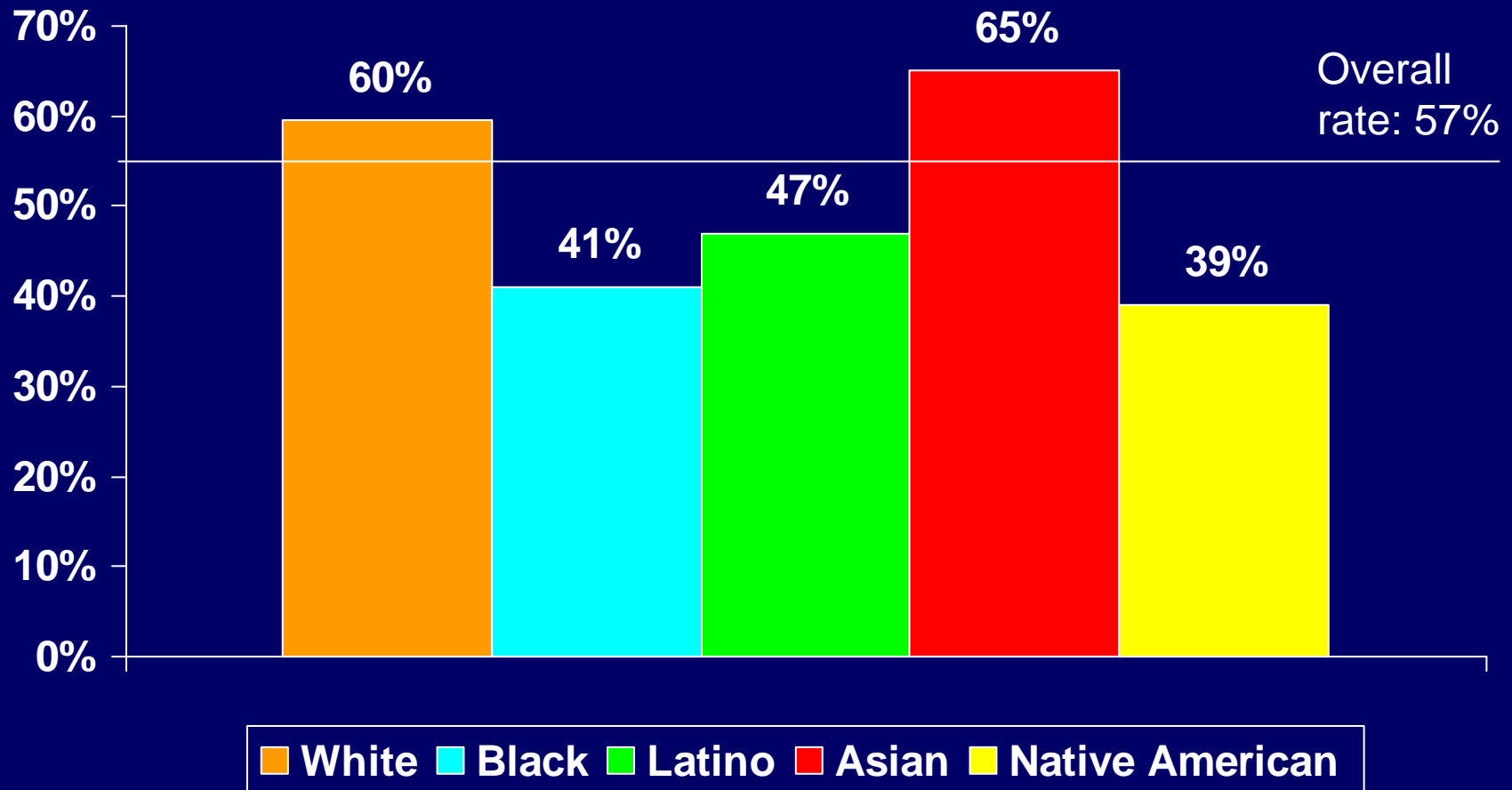


# For First-Time, Full Time Freshman in 4 Year Colleges...

- 4 in 10 earn a bachelors degree within 4 years;
- 6 in 10 earn a bachelors degree within 6 years;
- Numbers are worse for low-income students and students of color.

# College Completion Rates, Entering Class of '97

(6 Year Rates; All 4-Year Institutions)



Source: U.S. DOE, NCES, 1995-96 Beginning Postsecondary Students Longitudinal Study, Second Follow-Up (BPS: 96/01) in U.S. DOE, NCES, Descriptive Summary of 1995-96 Beginning Postsecondary Students: Six Years Later. Table 7-6 on page 163.

**ADD IT ALL UP...**

# Of Every 100 White Kindergartners:

- 93** Graduate from high school
- 65** Complete at least some college
- 33** Obtain at least a Bachelor's Degree

(25-to 29-Year-Olds)

# Of Every 100 African American Kindergartners:

- 87** Graduate from  
High School
- 50** Complete at Least  
Some College
- 18** Obtain at Least a  
Bachelor's Degree

(25-to 29-Year-Olds)

# Of Every 100 Latino Kindergartners:

- 63** Graduate from high school
- 32** Complete at least some college
- 11** Obtain at least a Bachelor's Degree

**(25-to 29-Year-Olds)**

# Of Every 100 American Indian/Alaskan Native Kindergartners:

**58** Graduate from High  
School

**7** Obtain at least a  
Bachelor's Degree

(24 Year Olds)

# College Graduates by Age 26

<b>Young People From High Income Families</b>	<b>60%</b>
---	------------

<b>Young People From Low Income Families</b>	<b>7%</b>
--	-----------

WHY?

# What Most Educators Say:

- They're poor;
- Their parents don't care;
- They come to schools without breakfast;
- Not enough books
- Not enough parents . . . .

But if they're right,  
then why are poor and  
minority children performing  
so high in...

Some schools...

# Samuel W. Tucker

## Elementary

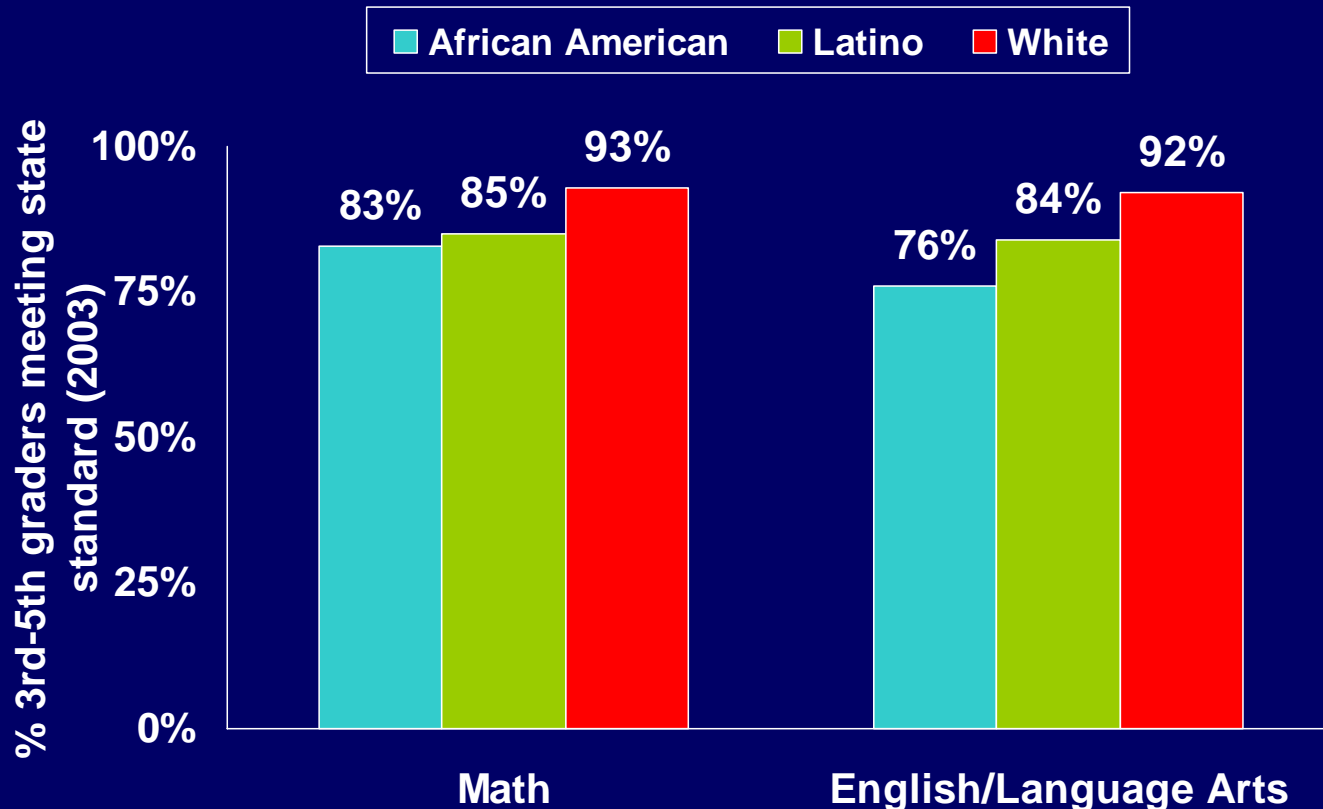
### Alexandria, VA

▶ 68% African American and Latino

▶ 53% low-income

★ Outperformed 2/3 of VA elem. schools in both reading and math for two years in a row (2001-2).

★ In 2002, outperformed 92% of VA elem. schools in reading and 86% in math.



# West Manor Elementary

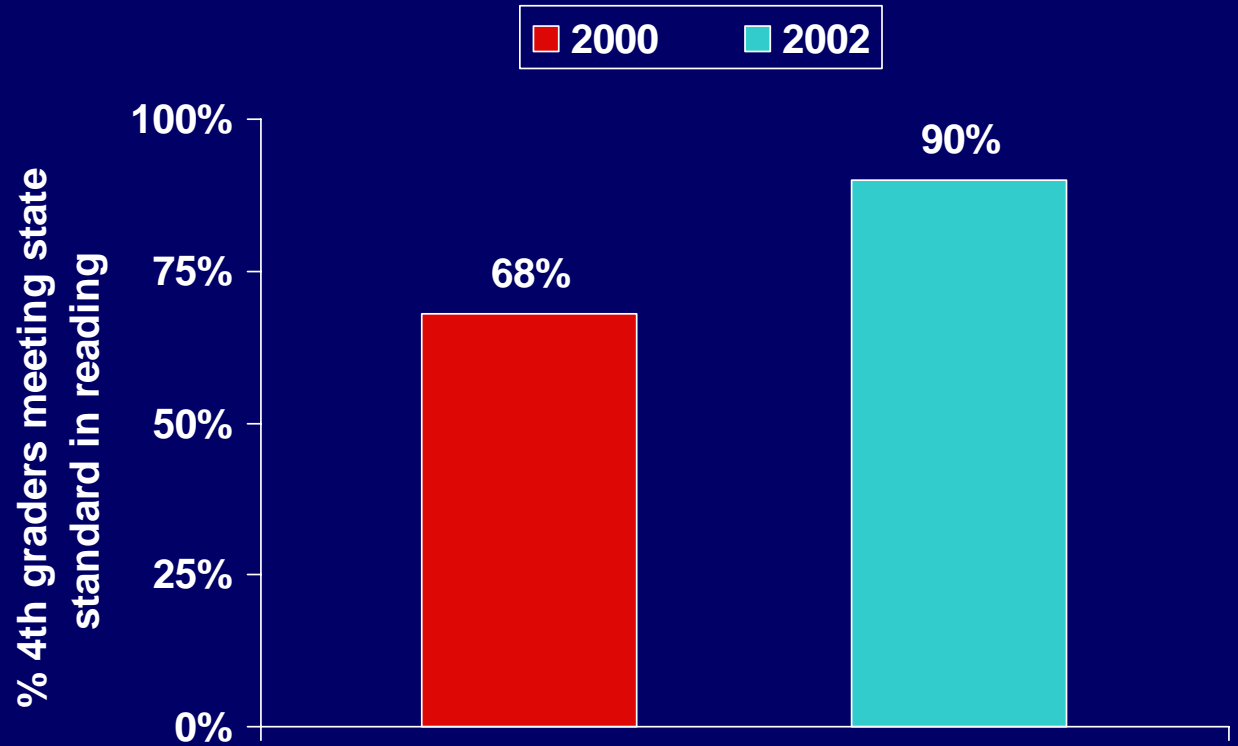
## Atlanta, GA

▶ 99% African American.

▶ 80% low-income

★ Outscored 98% of GA elementary schools in 2<sup>nd</sup> grade reading in 2002.

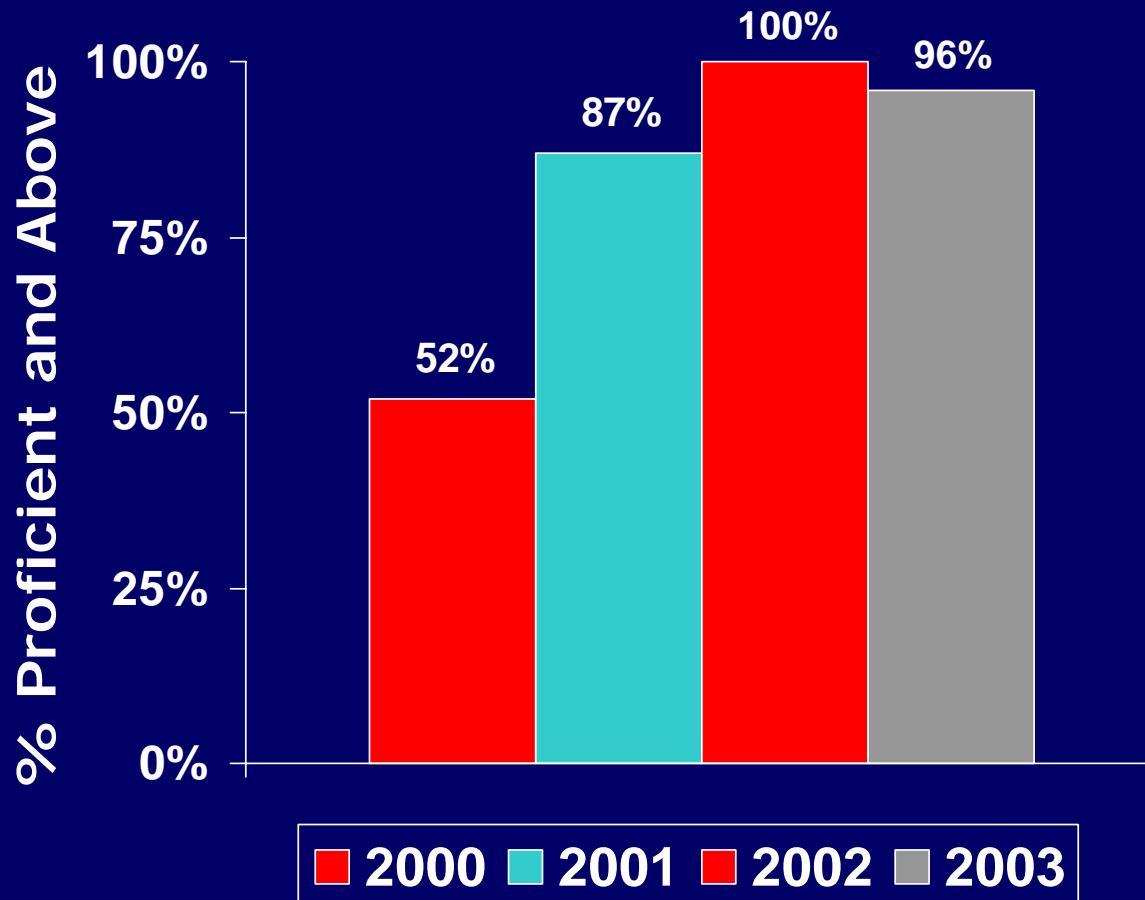
★ Outperformed 90% of GA elementary schools in 2<sup>nd</sup> grade math in 2002.



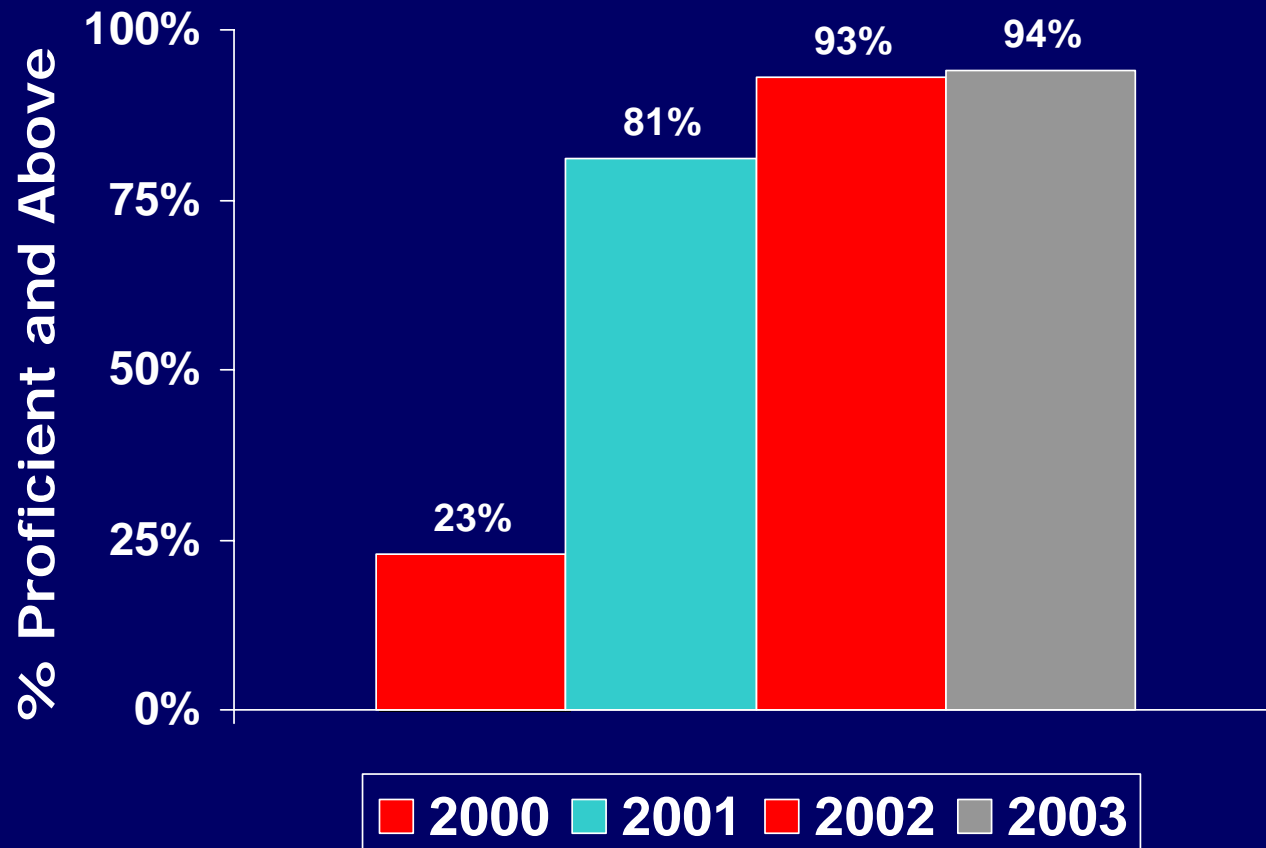
# Central Elementary Paintsville, KY

- 71% Low-Income
- 99% White
- Outperformed the district and state in 4th grade reading and 5th grade math in 2003
- Made considerable gains in 4th grade reading and 5th grade math scores

# Making Gains at Central 4th Grade Reading



# Making Gains at Central 5<sup>th</sup> Grade Math

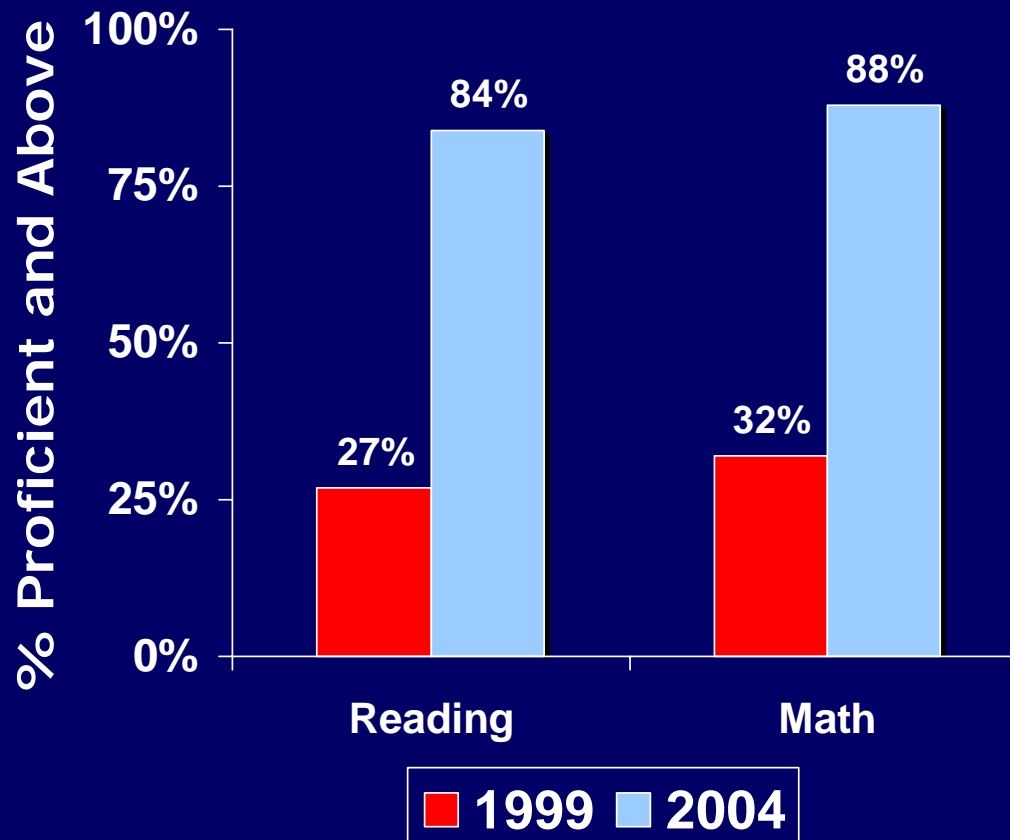


## **Lapwai Elementary Lapwai, ID**

- 75% Native American
- 21% White
- 69% Low-income
- Outperformed the state in 4th grade reading and math in 2003
- Native American students outscored all students in the state in 4th grade reading and math in 2003

# Making Gains at Lapwai

## Grade 4

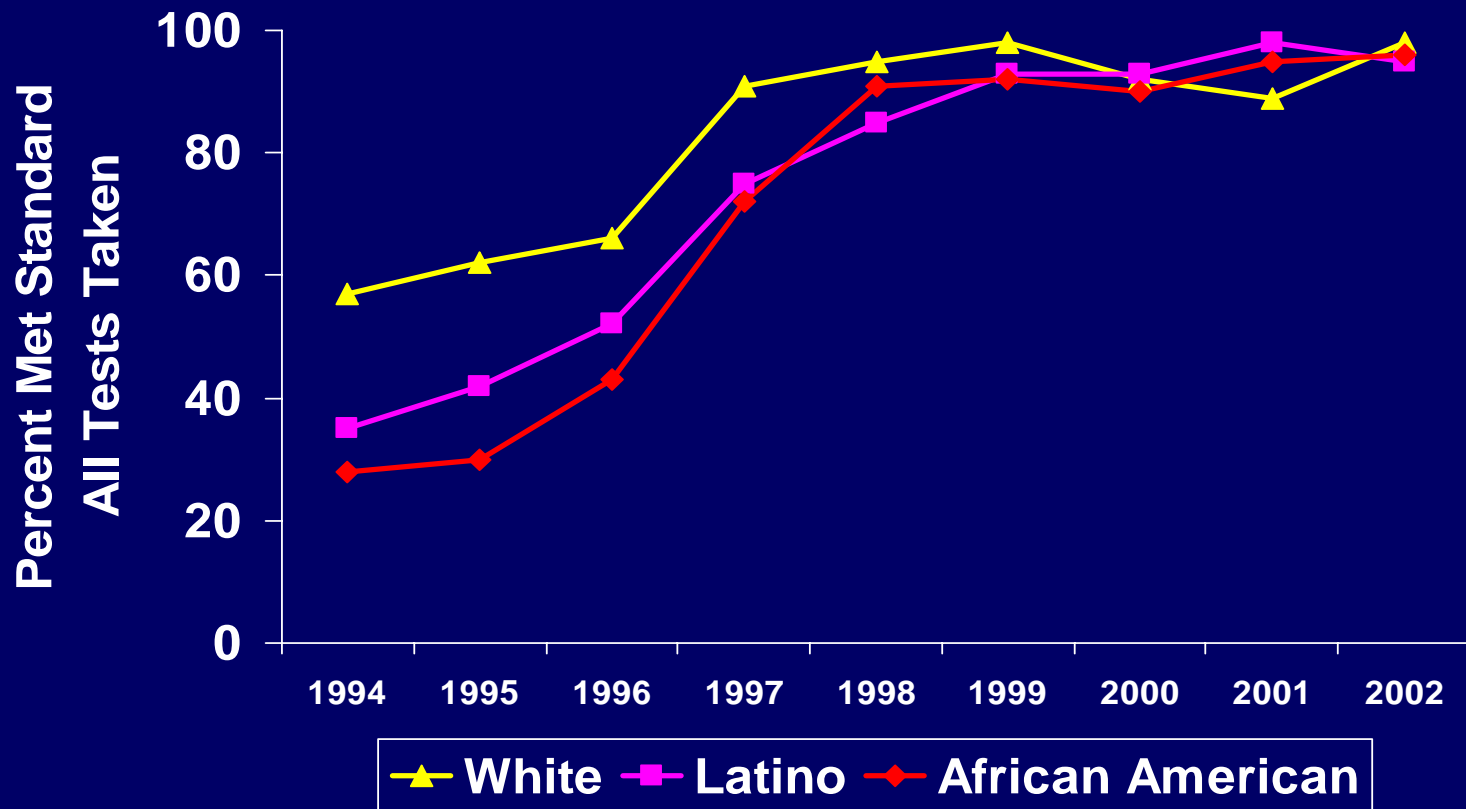


## Achievement Highlights

# Hambrick Middle School Aldine Independent School District, TX

- 72% Latino
- 23% African American
- 5% White
- 87% Low-Income
- Outperformed the district and state in 8th grade math in 2003

# Hambrick Middle School Making Gains, Narrowing Gaps



# Johnson County Middle School, Kentucky

- 95% Low Income
- Outperformed 2/3 of other Kentucky middle schools in both math and reading for three years in a row (2000-2002).
- In 2002, performed better than about 90% of all KY middle schools in both math and reading.

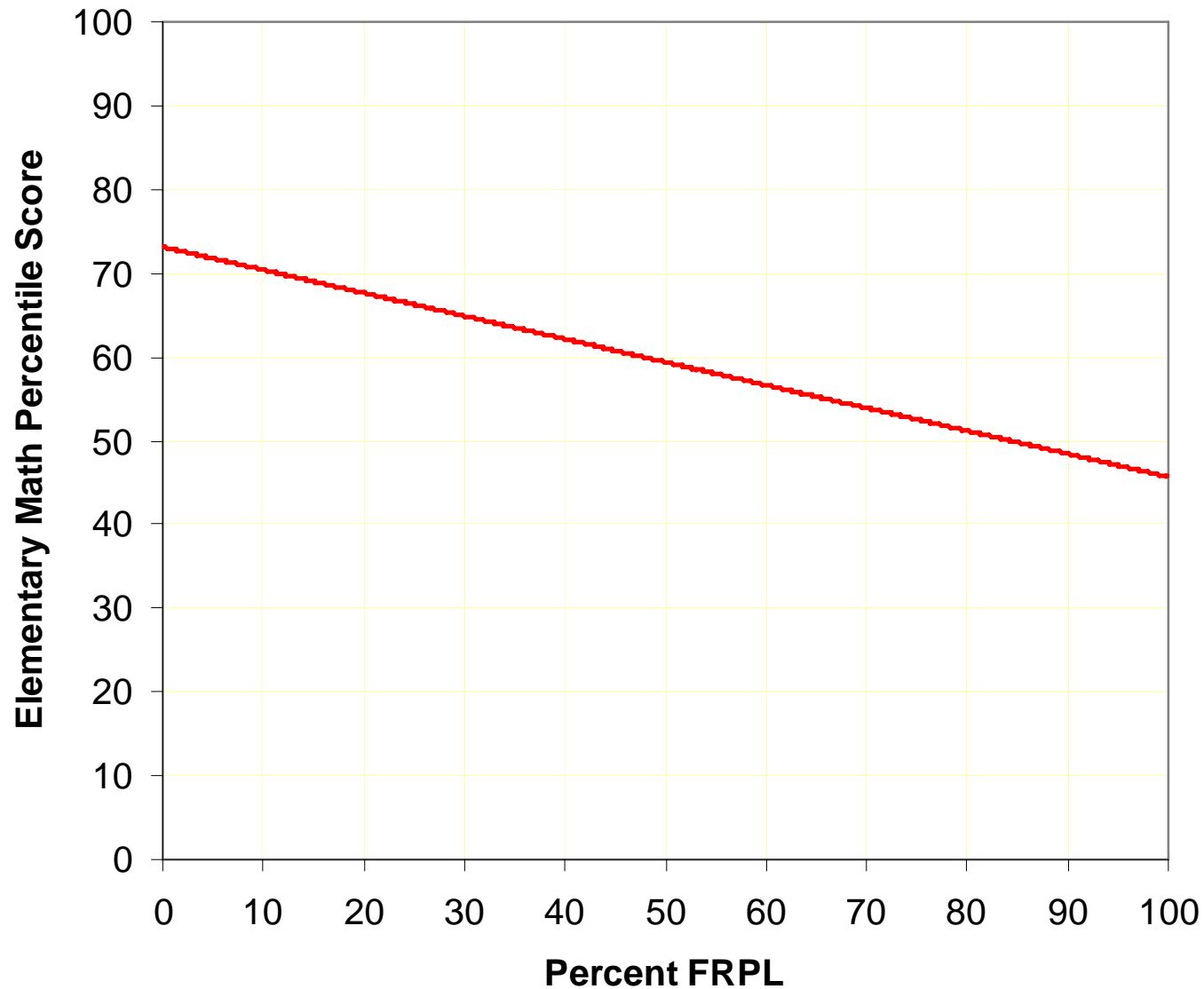
# University Park High School Worcester, MA

- Grades 7-12;
- 70+% poverty;
- 50% ELL;
- Most students enter at least two grade levels behind.

# University Park Results: 2004

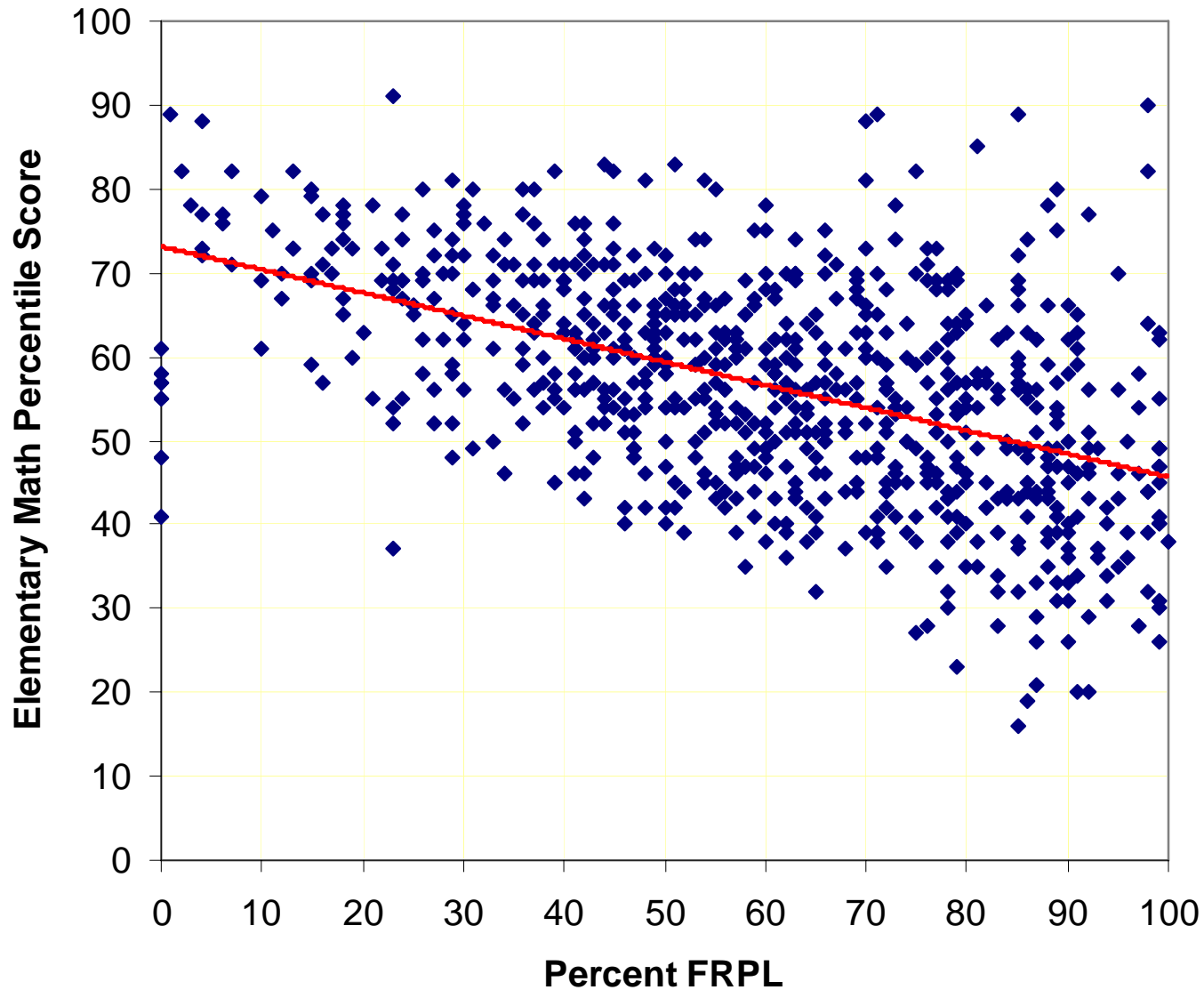
- Only one 10<sup>th</sup> grader didn't pass MA high school exit exam on first attempt (turned out, didn't attend the school).
- 87% past at advanced or proficient level.
- Fifth most successful school in the state, surpassing many schools serving wealthy students.

# Poverty vs. Achievement in Kentucky Elementary Schools



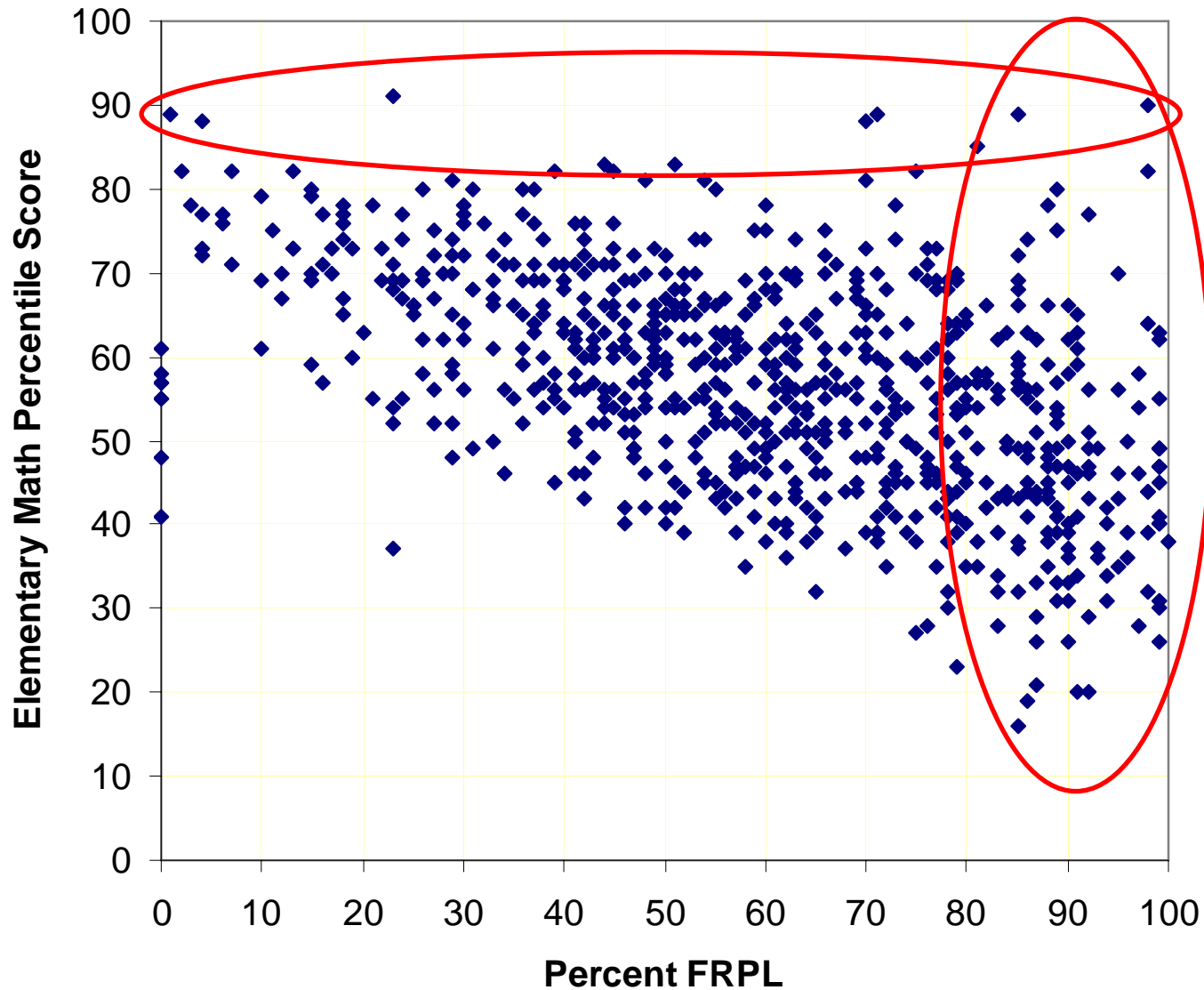
Source: Education Trust  
analysis of data from  
*National School-Level  
State Assessment Score  
Database*  
([www.schooldata.org](http://www.schooldata.org)).

# Poverty vs. Achievement in Kentucky Elementary Schools



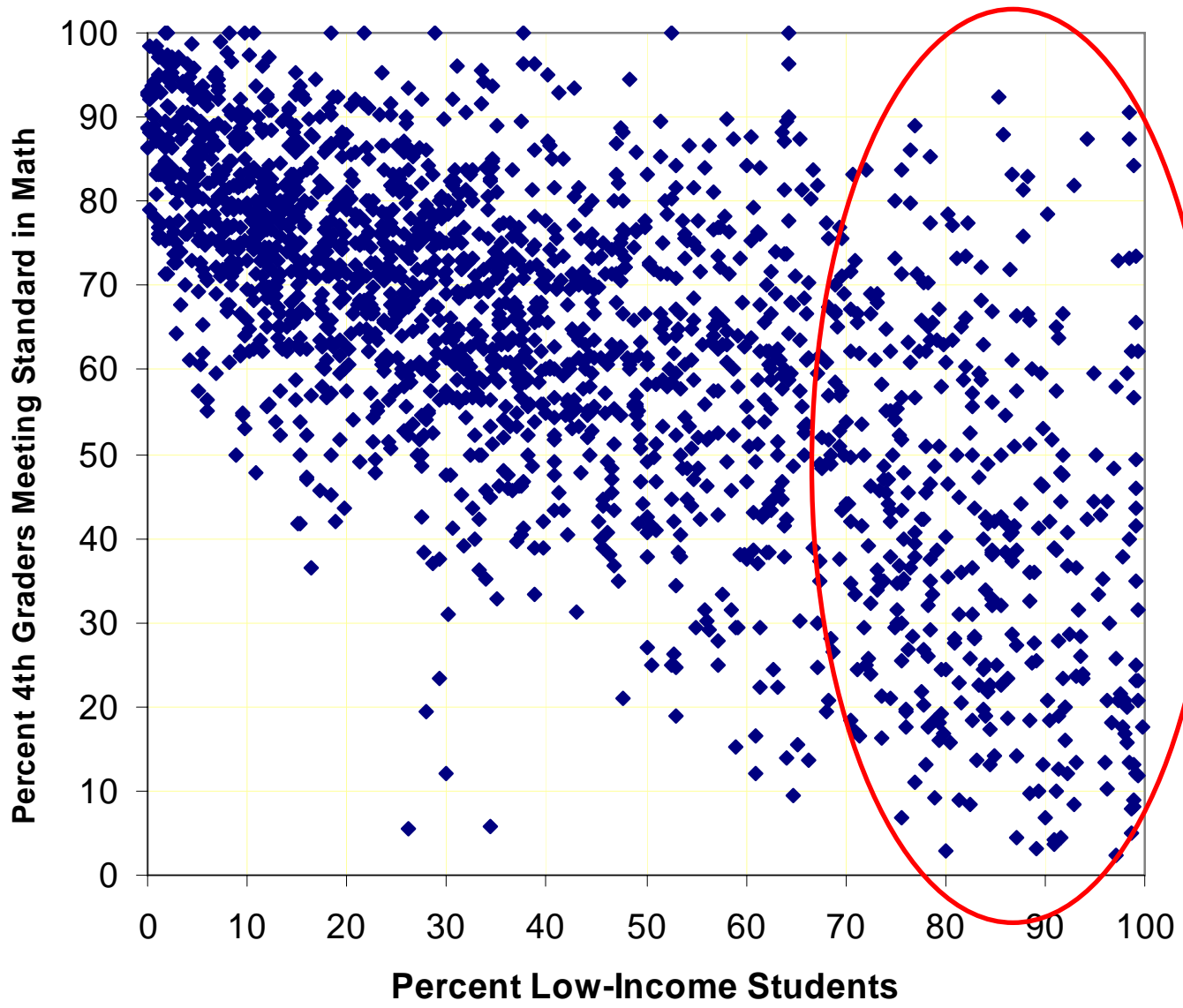
Source: Education Trust  
analysis of data from  
*National School-Level  
State Assessment Score  
Database*  
([www.schooldata.org](http://www.schooldata.org)).

# Poverty vs. Achievement in Kentucky Elementary Schools



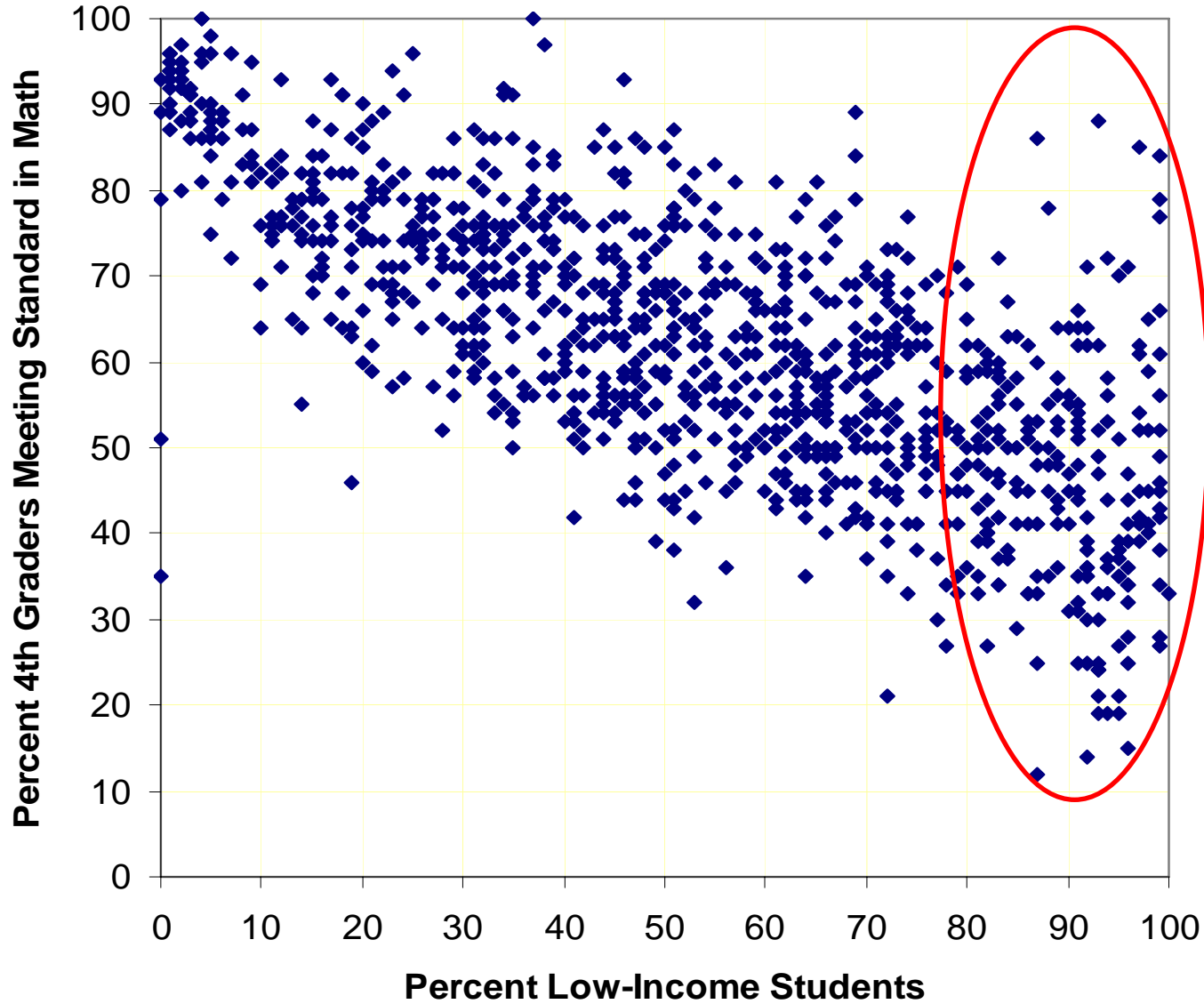
Source: Education Trust  
analysis of data from  
*National School-Level  
State Assessment Score  
Database*  
([www.schooldata.org](http://www.schooldata.org)).

# Poverty vs. Achievement in Michigan Elementary Schools



**Source:** Education Trust  
analysis of data from  
*National School-Level  
State Assessment Score  
Database*  
([www.schooldata.org](http://www.schooldata.org)).  
Data are from 2002.

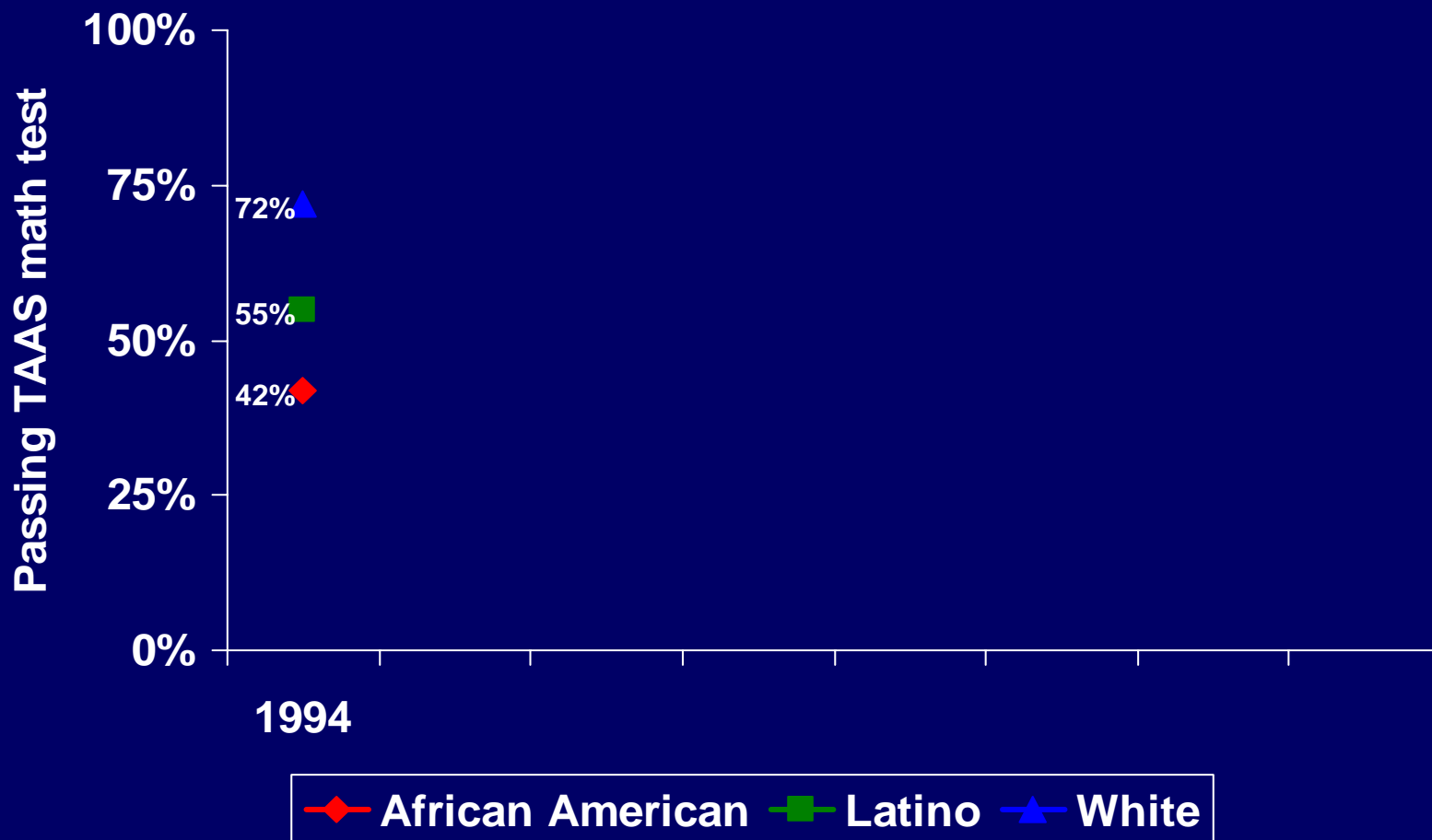
# Poverty vs. Achievement in Georgia Elementary Schools



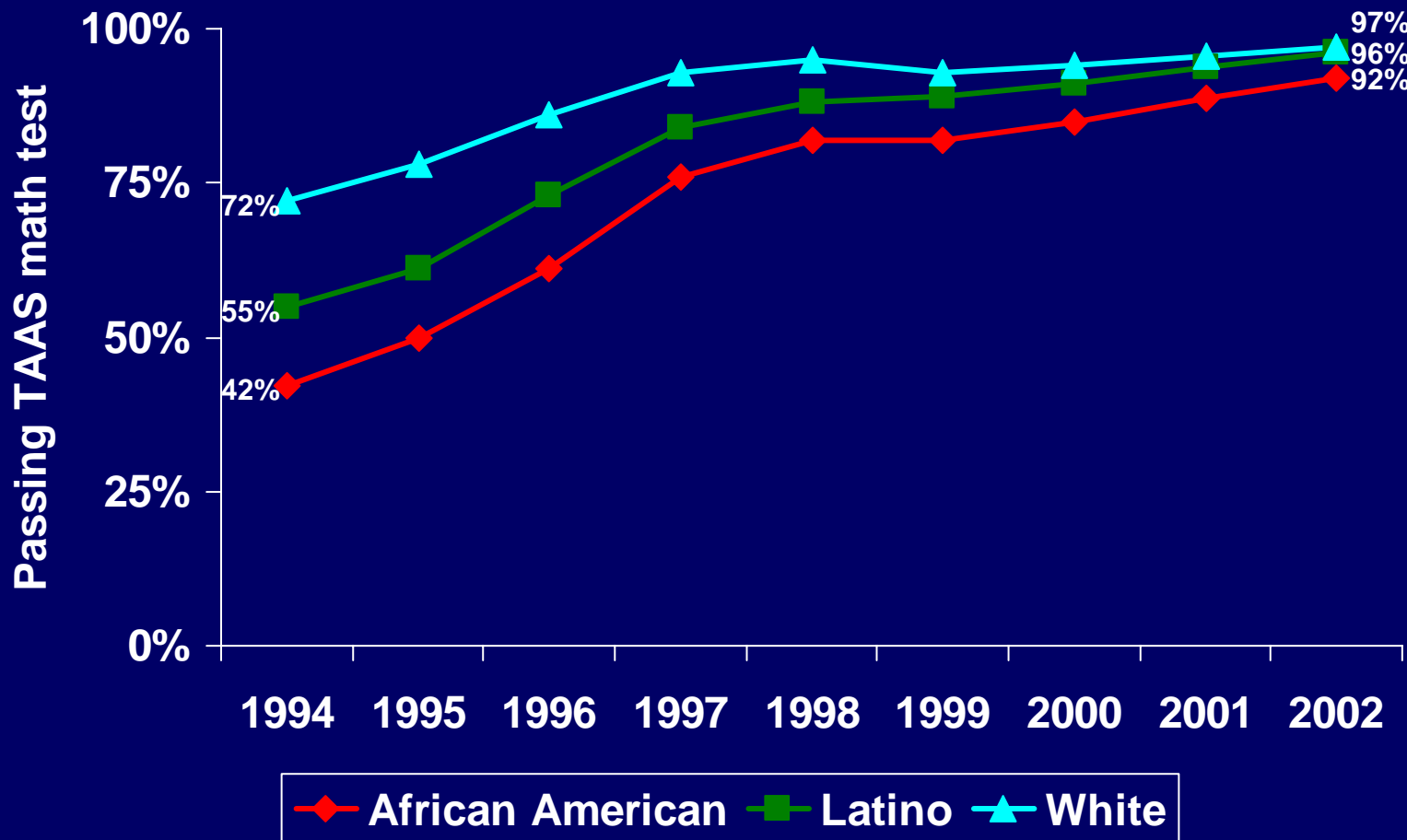
**Source:** Education Trust  
analysis of data from  
*National School-Level  
State Assessment Score  
Database*  
([www.schooldata.org](http://www.schooldata.org)).

Some districts...

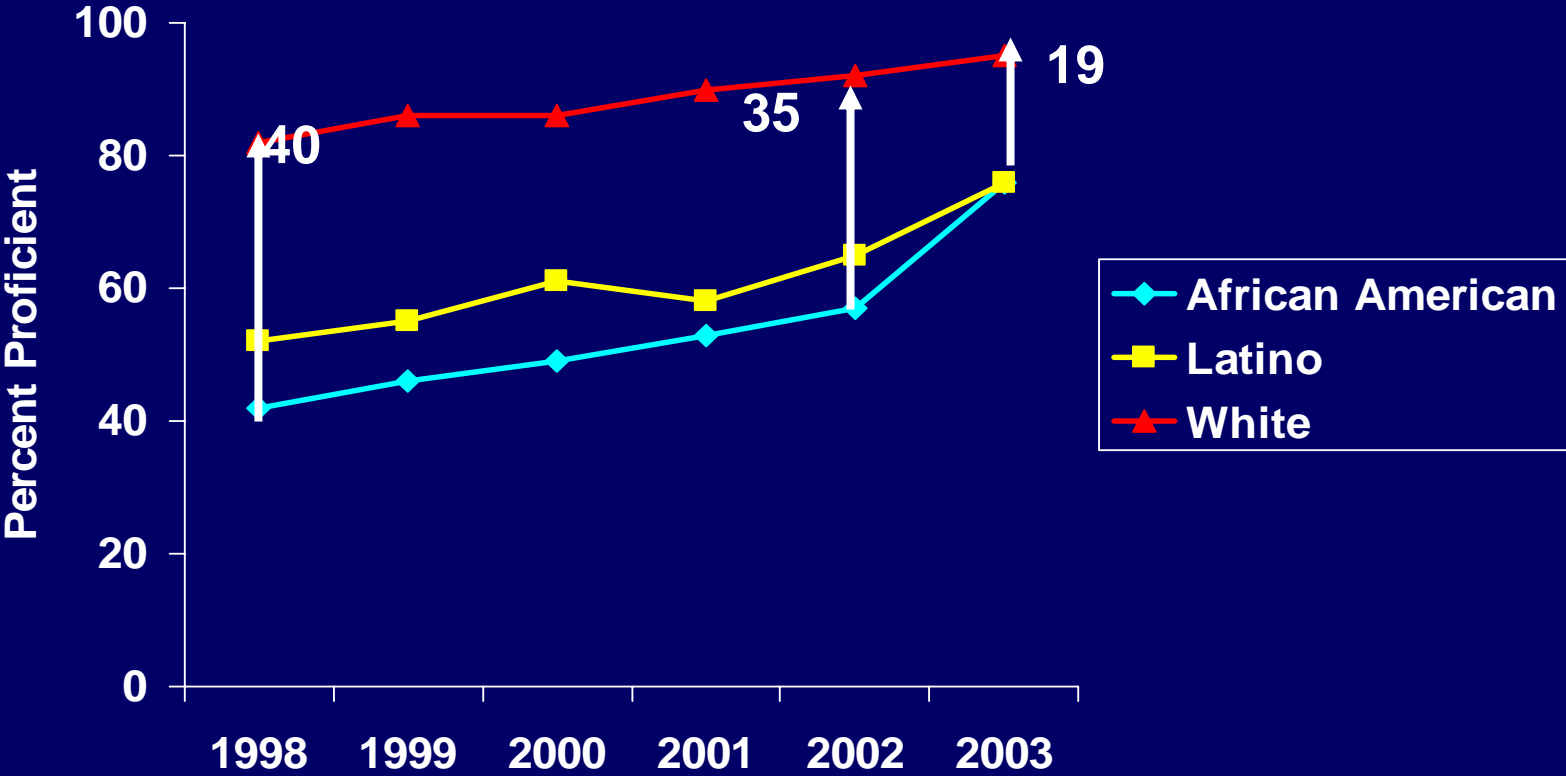
# Aldine, TX: Raising Achievement for All While Narrowing Gaps



# Aldine, TX: Raising Achievement for All While Narrowing Gaps

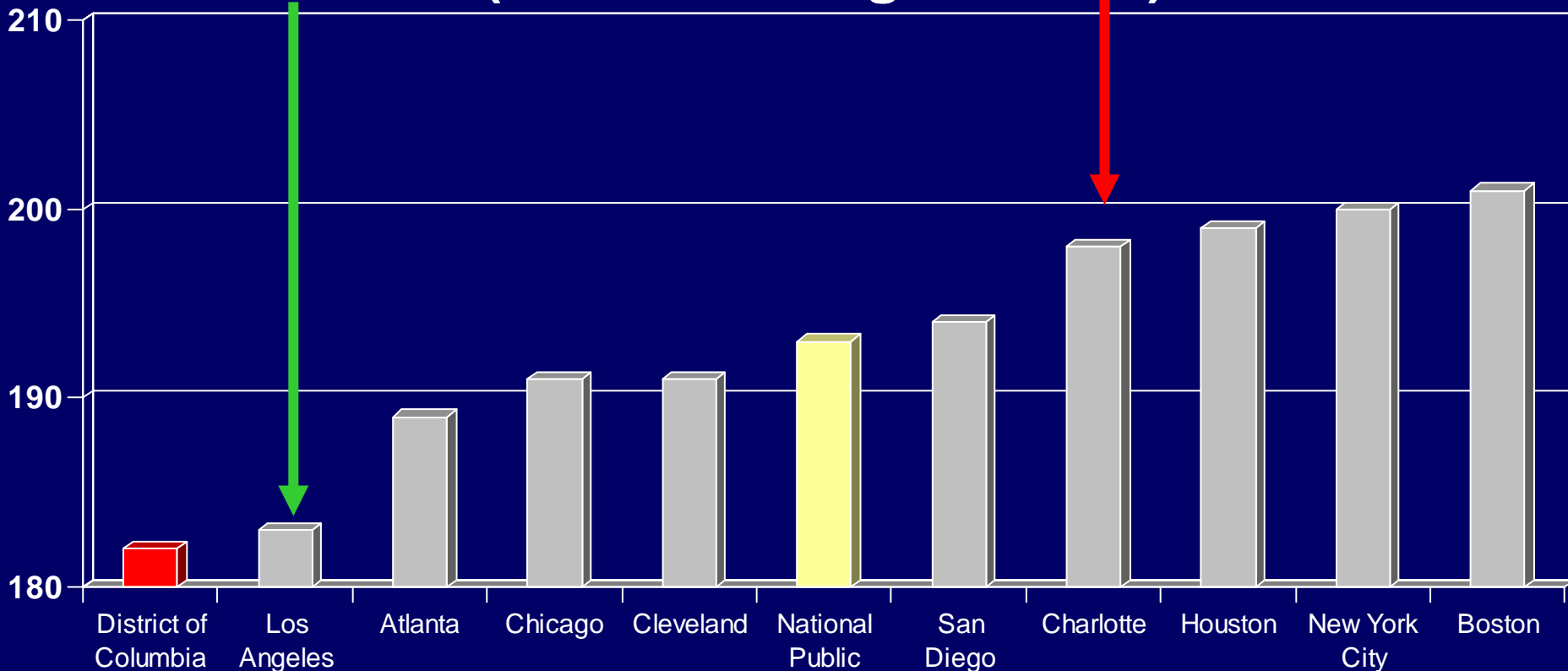


# Charlotte-Mecklenburg, North Carolina Raising Achievement, Closing Gaps Grade 3 Math



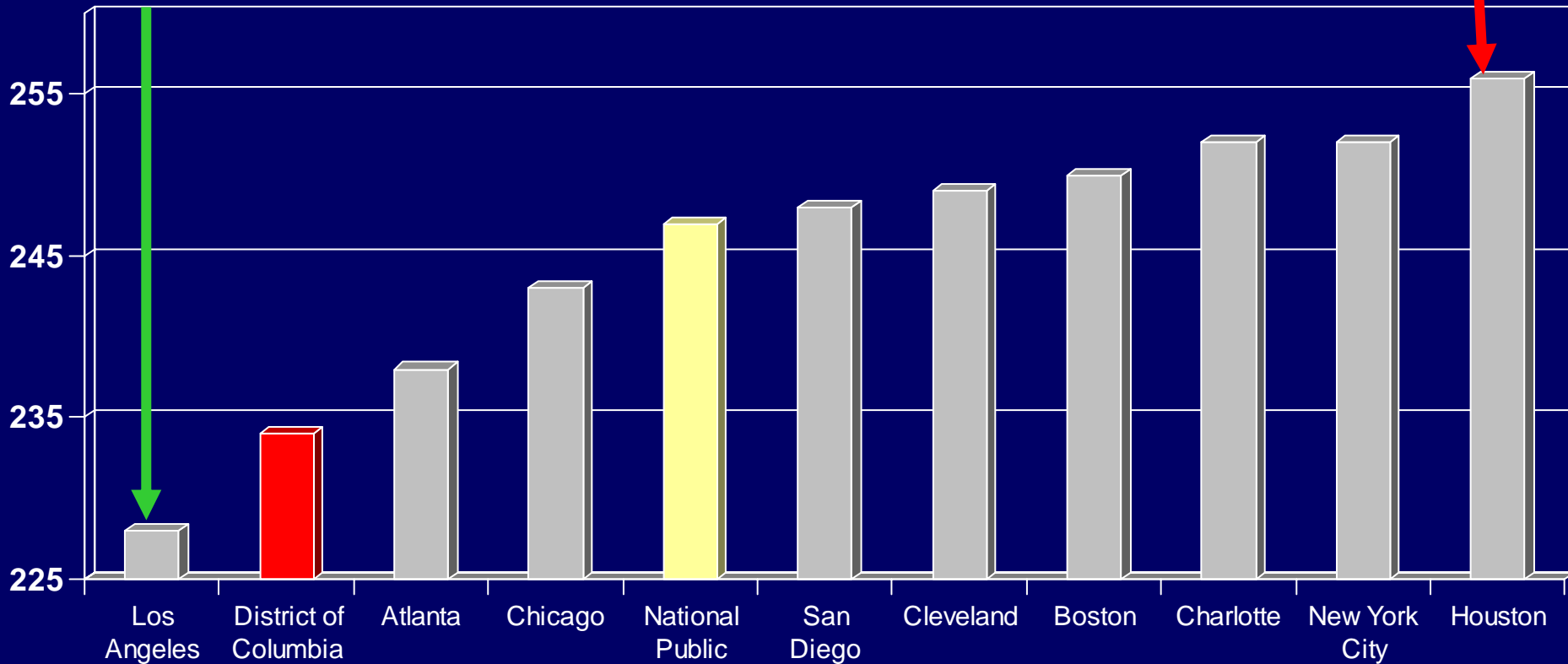
Source: North Carolina Department of Public Instruction, <http://www.ncpublicschools.org>

# Low-Income African American Students do Better in Some Districts (NAEP Reading 4th 2003)



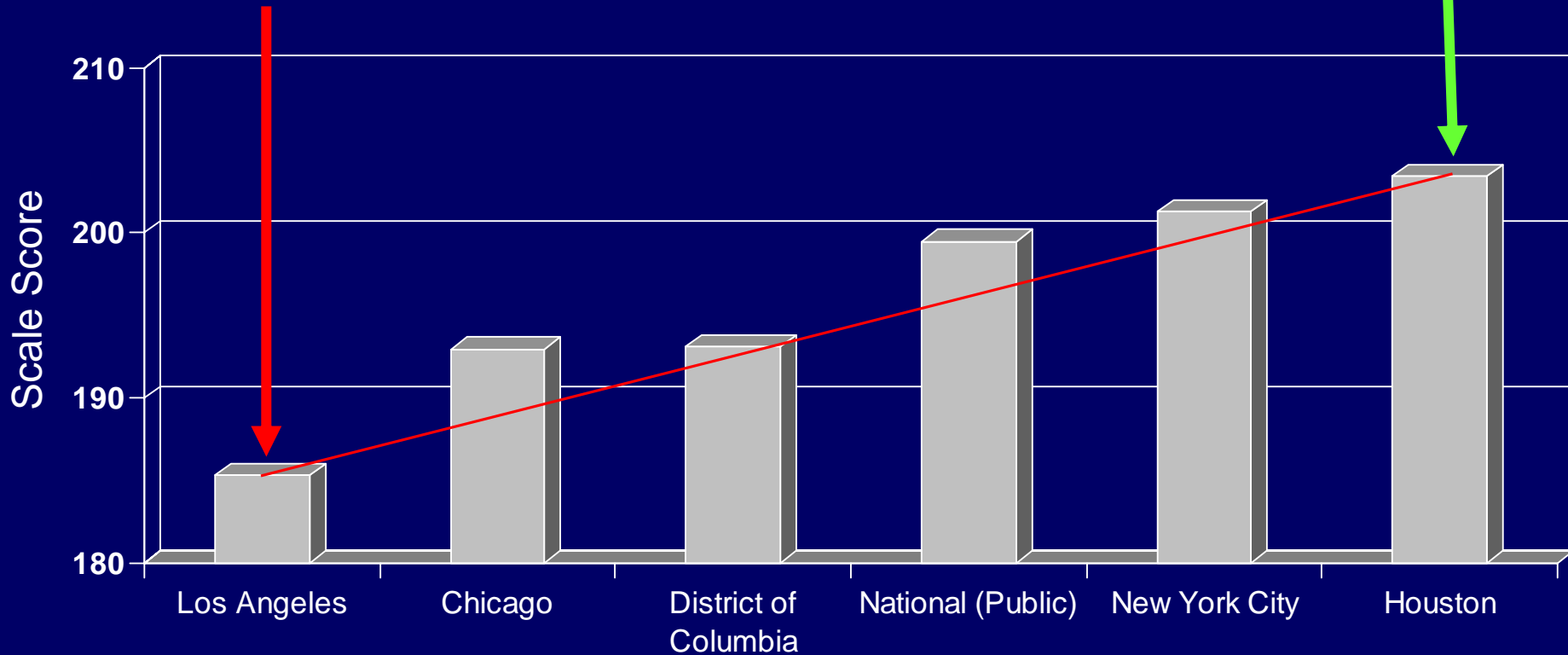
**\* There is a 19 point gap between Poor African American 4<sup>th</sup> graders in the District of Columbia and Boston (roughly equivalent to 2 years' worth of learning)**

# Low-Income African American Students do Better in Some Districts (NAEP Math 8th 2003)



**\* There is a 28 point gap between Poor African American 8<sup>th</sup> graders in Los Angeles and Houston (roughly equivalent to 3 years' worth of learning)**

# Latino Students do Better in Some Districts (NAEP Reading 4th 2002, 6 Urban Districts)



**\* There is an 18 point gap between Los Angeles and Houston (equivalent to almost 2 years worth of learning)**

And some entire states...

# 4th Grade Math African American Gains Between 1992 and 2000

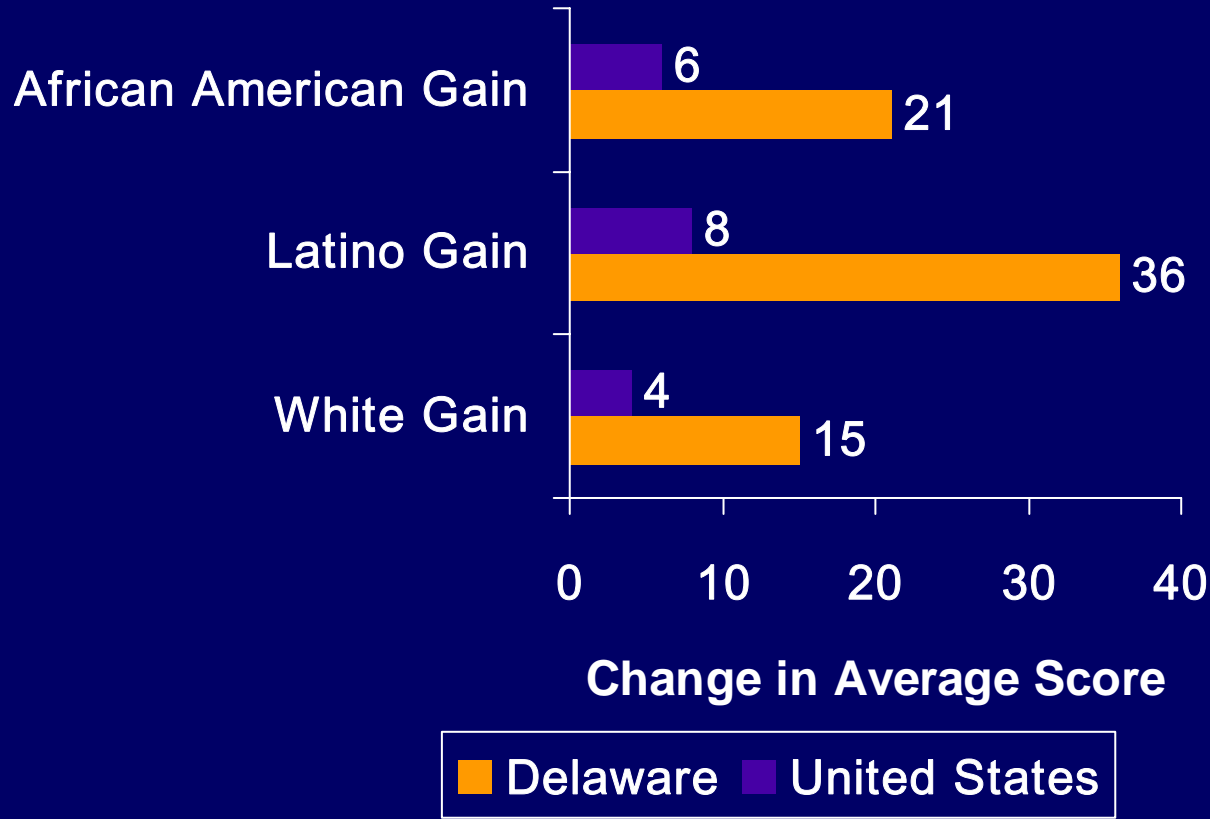
United States	+13
North Carolina	+25
Texas	+21
Massachusetts	+18

Source: USDOE, NCES, National Assessment of Educational Progress (NAEP) Summary Data  
Tables

# 4th Grade Math Latino Gains Between 1992 and 2000

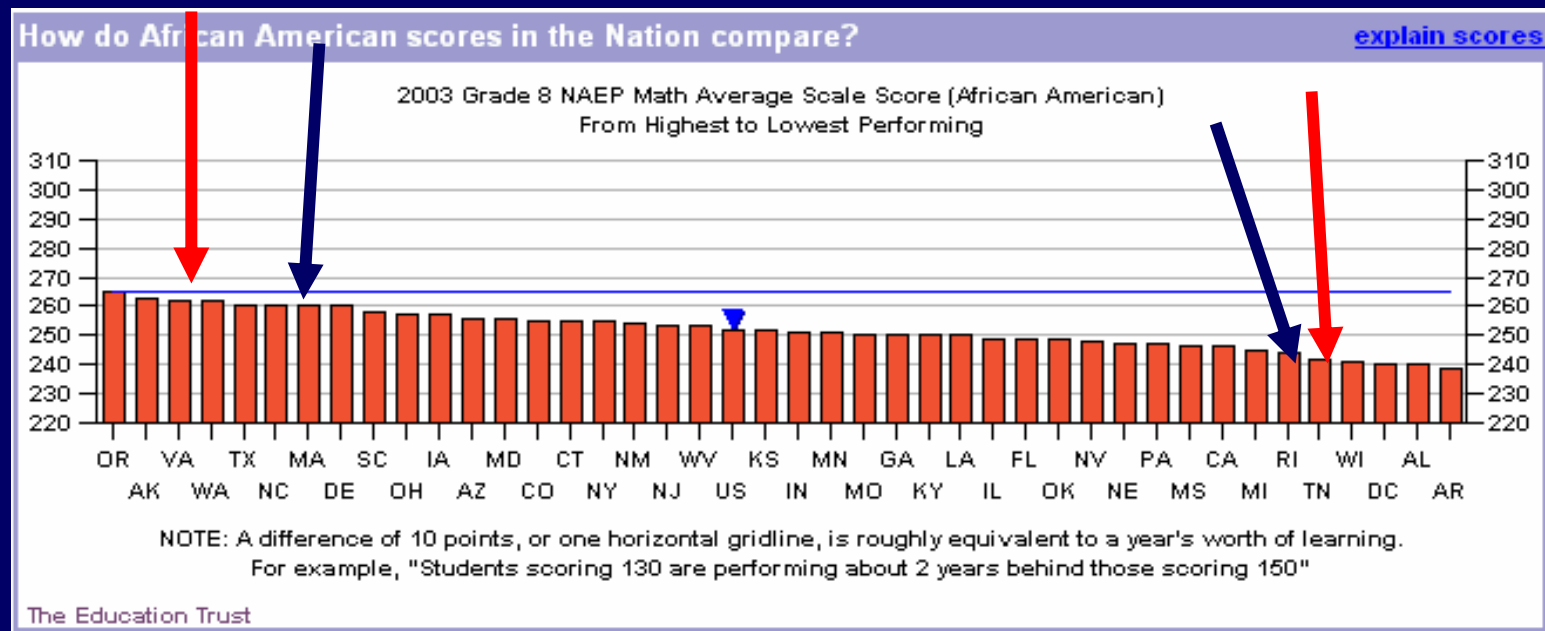
United States	+10
North Carolina	+18
Texas	+15
Mississippi	+15

# Delaware: Gains in Grade 4 Reading Outpace the Nation, 1998-2002

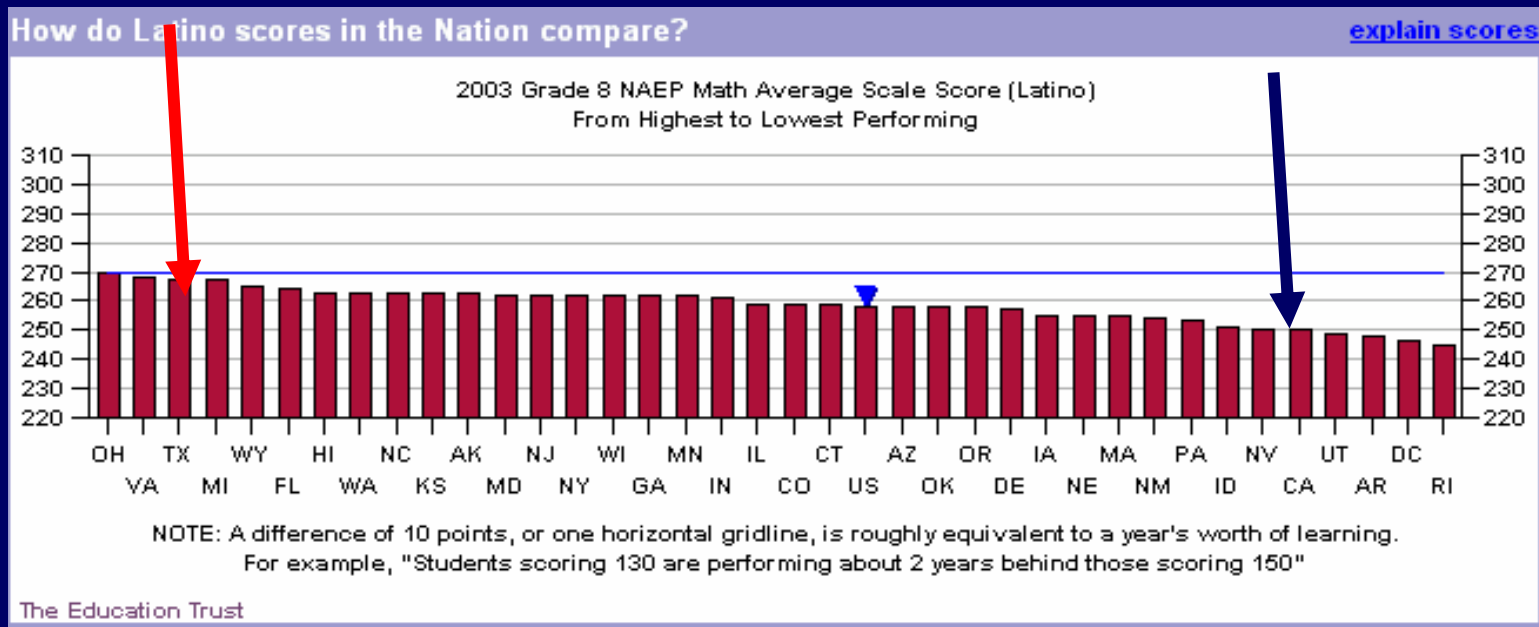


Big differences across states in performance of “same” group.

# Black 8th Graders? NAEP MATH

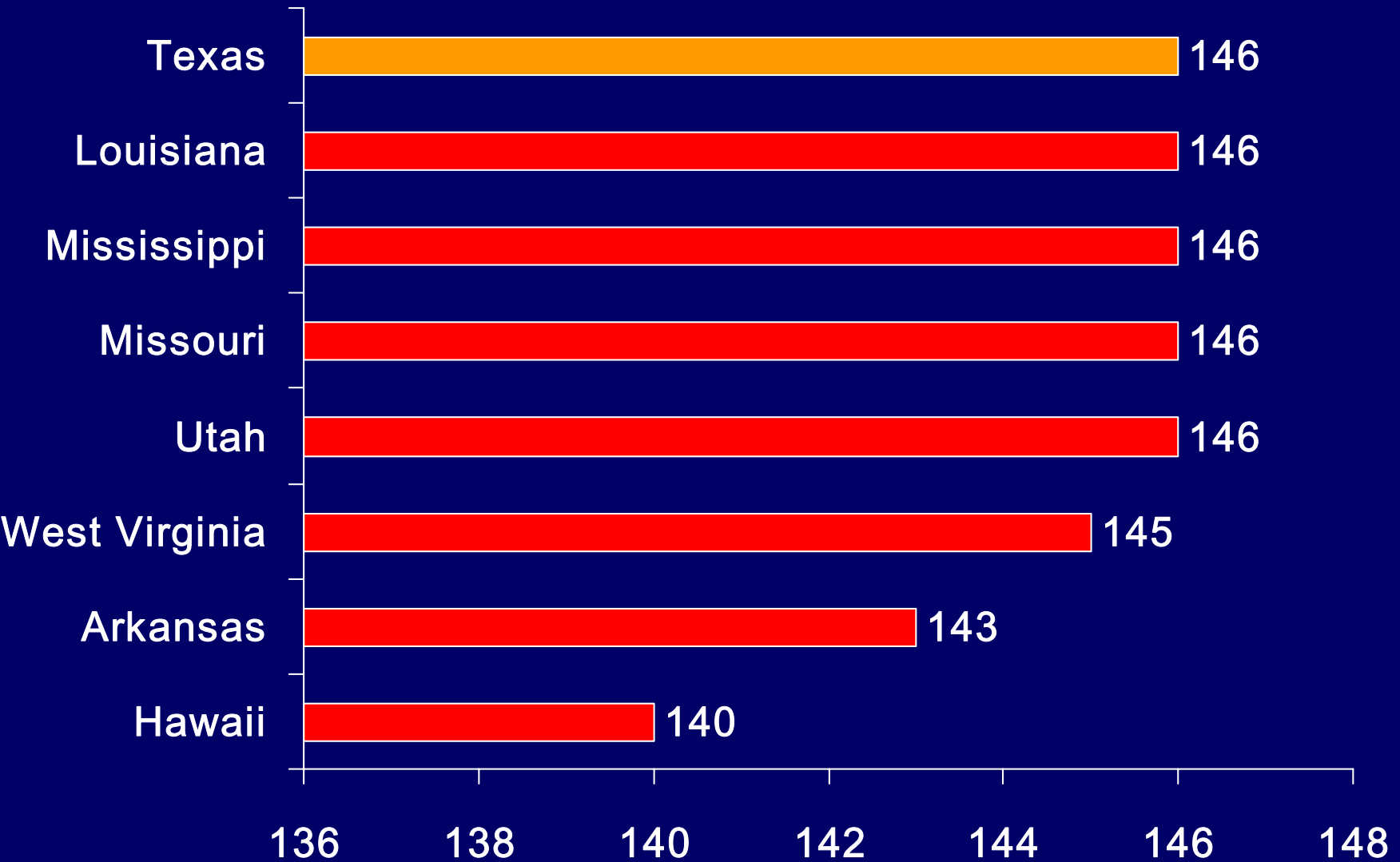


# Latino 8<sup>th</sup> Graders: NAEP Math



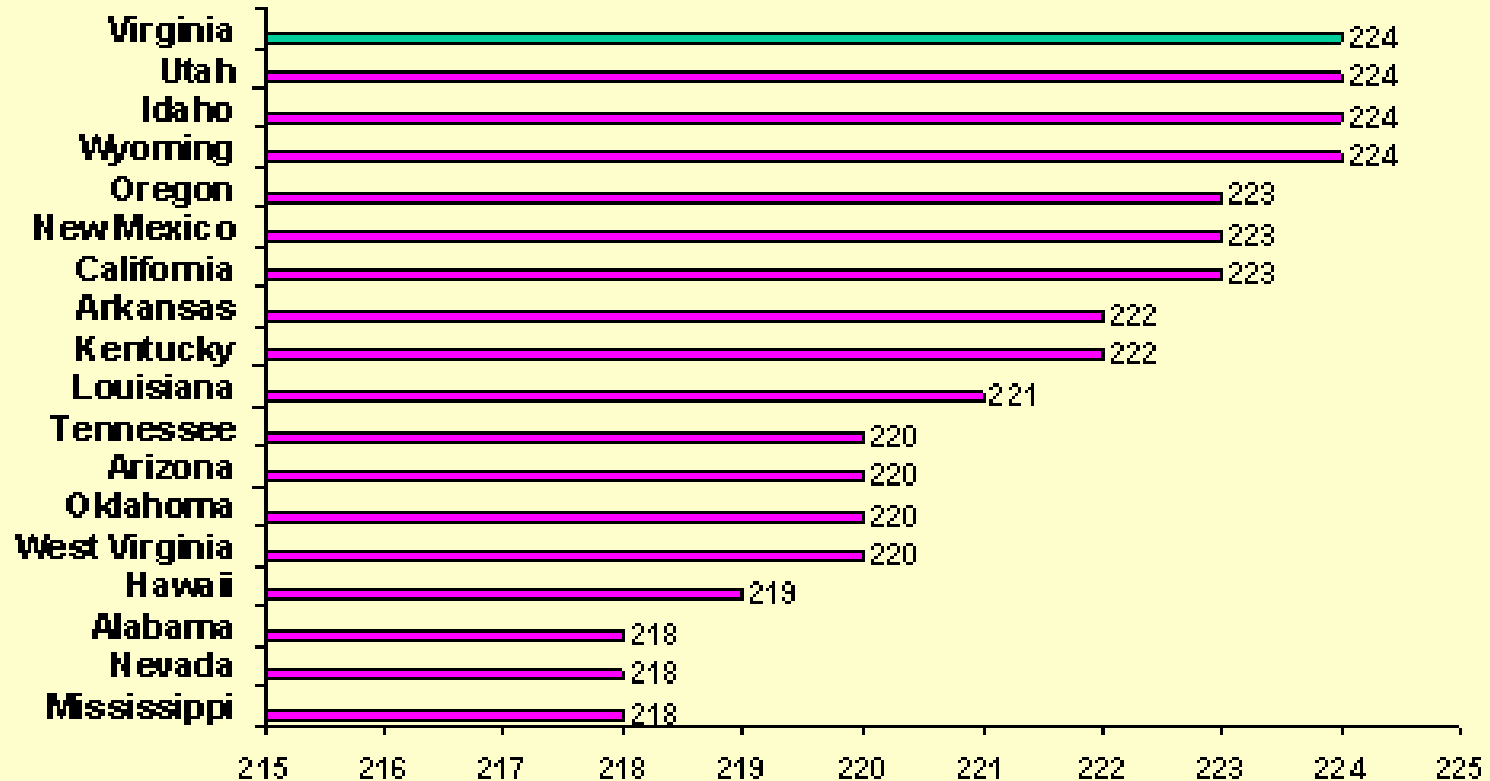
Minority and/or poor students  
in some states outperforming  
white and/or non-poor  
students in others.

# 8th Grade Writing: African Americans in Texas Perform as Well or Better Than Whites in 7 States



Source: NCES, National Assessment of Educational Progress  
**NAEP Grade 8 Writing 1998**

## 4th Grade Reading (2002): Latinos in Virginia Perform as Well or Better Than Whites in 17 States

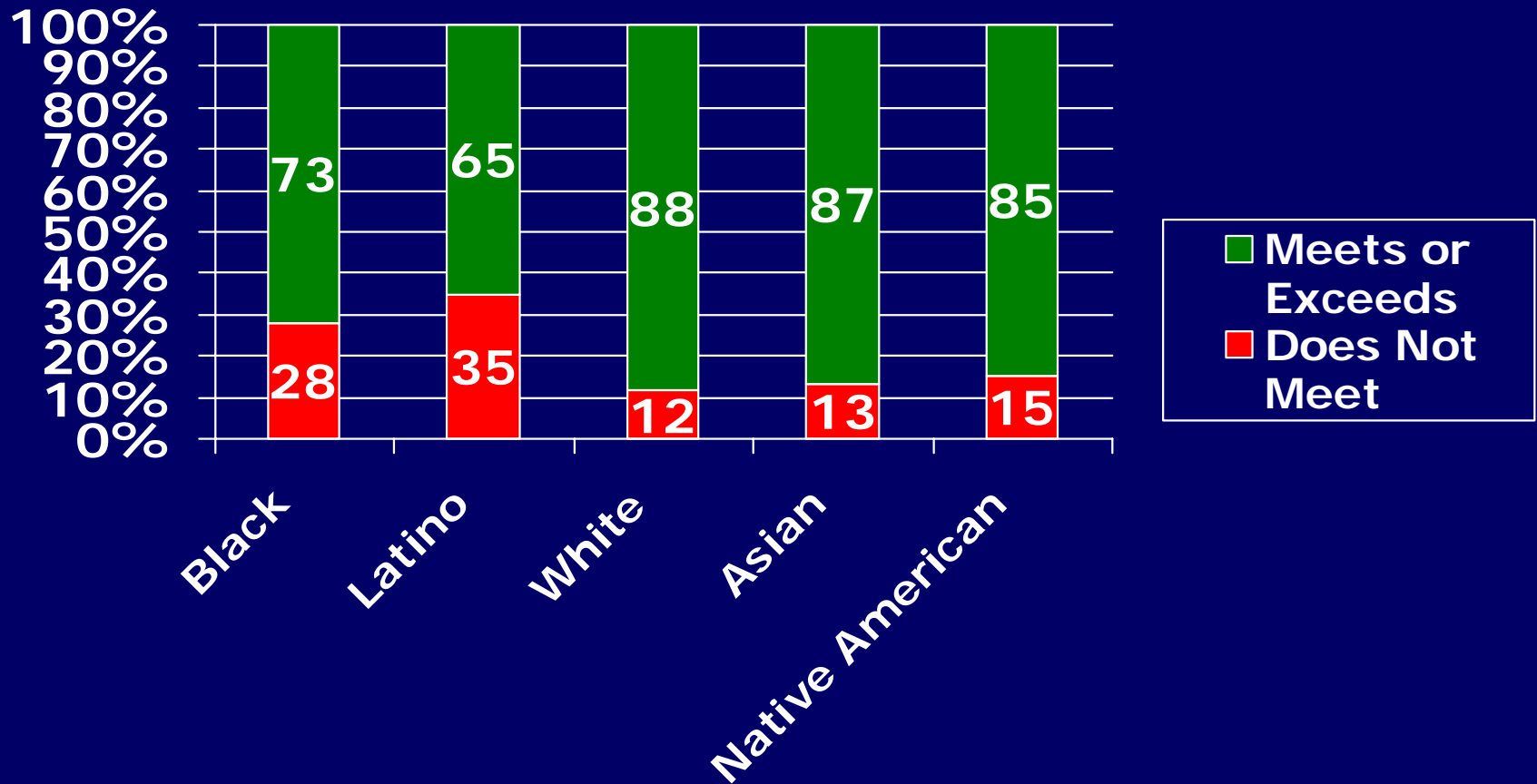


Source : NCES, National Assessment of Educational Progress (NAEP)

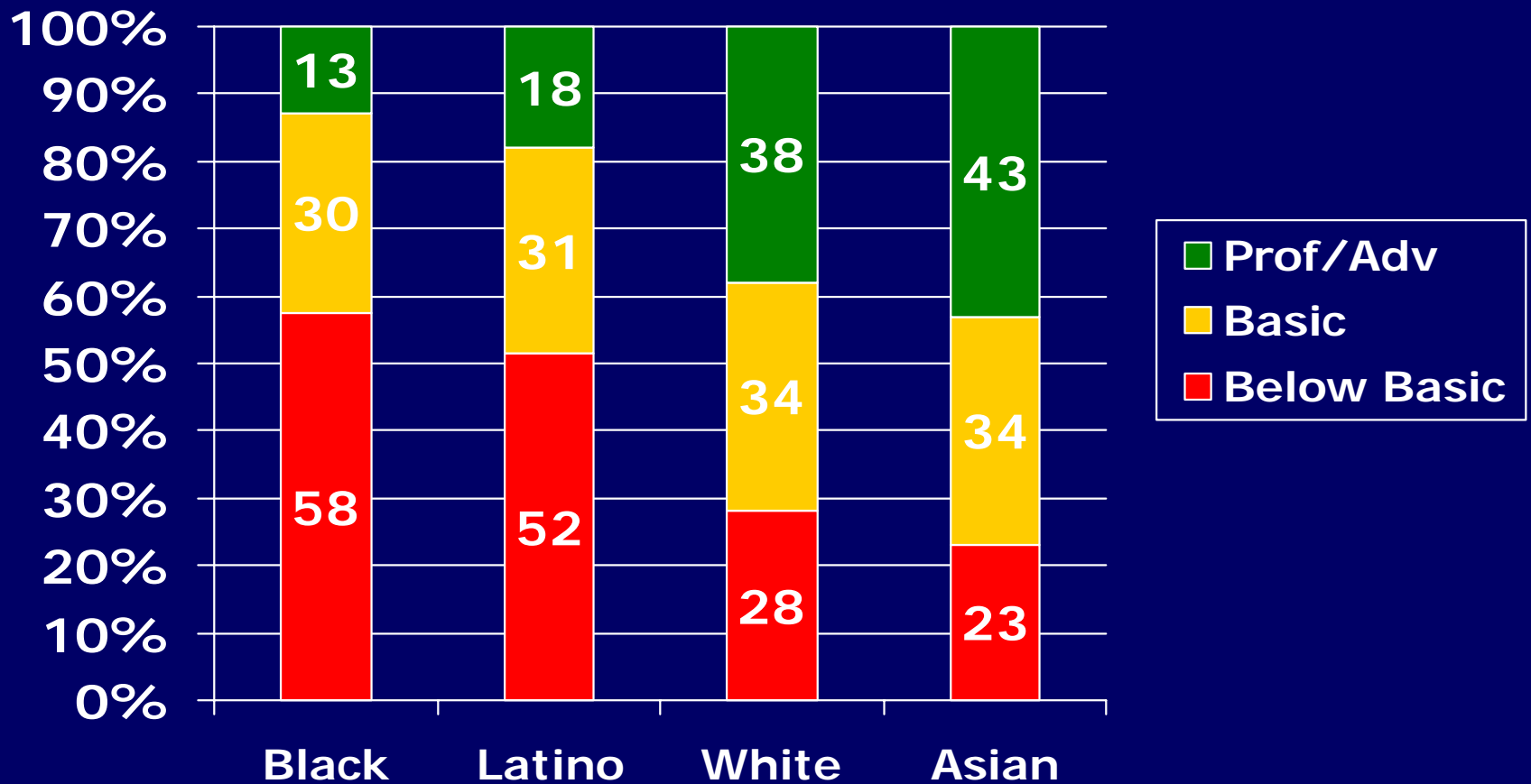
© The Education Trust, Inc., 2003

Georgia?

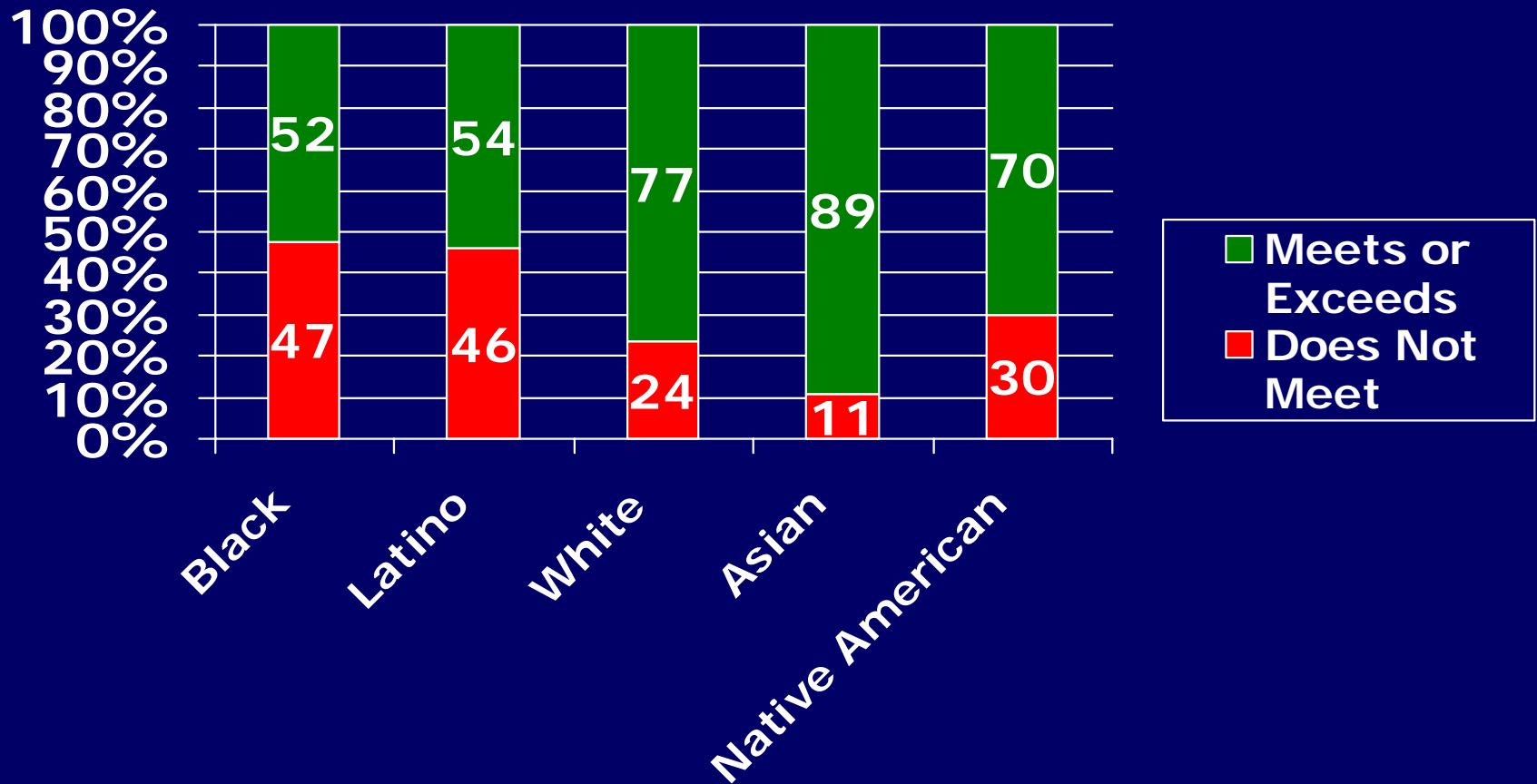
# Georgia Criterion-Referenced Competency Test 4th Grade Reading 2003



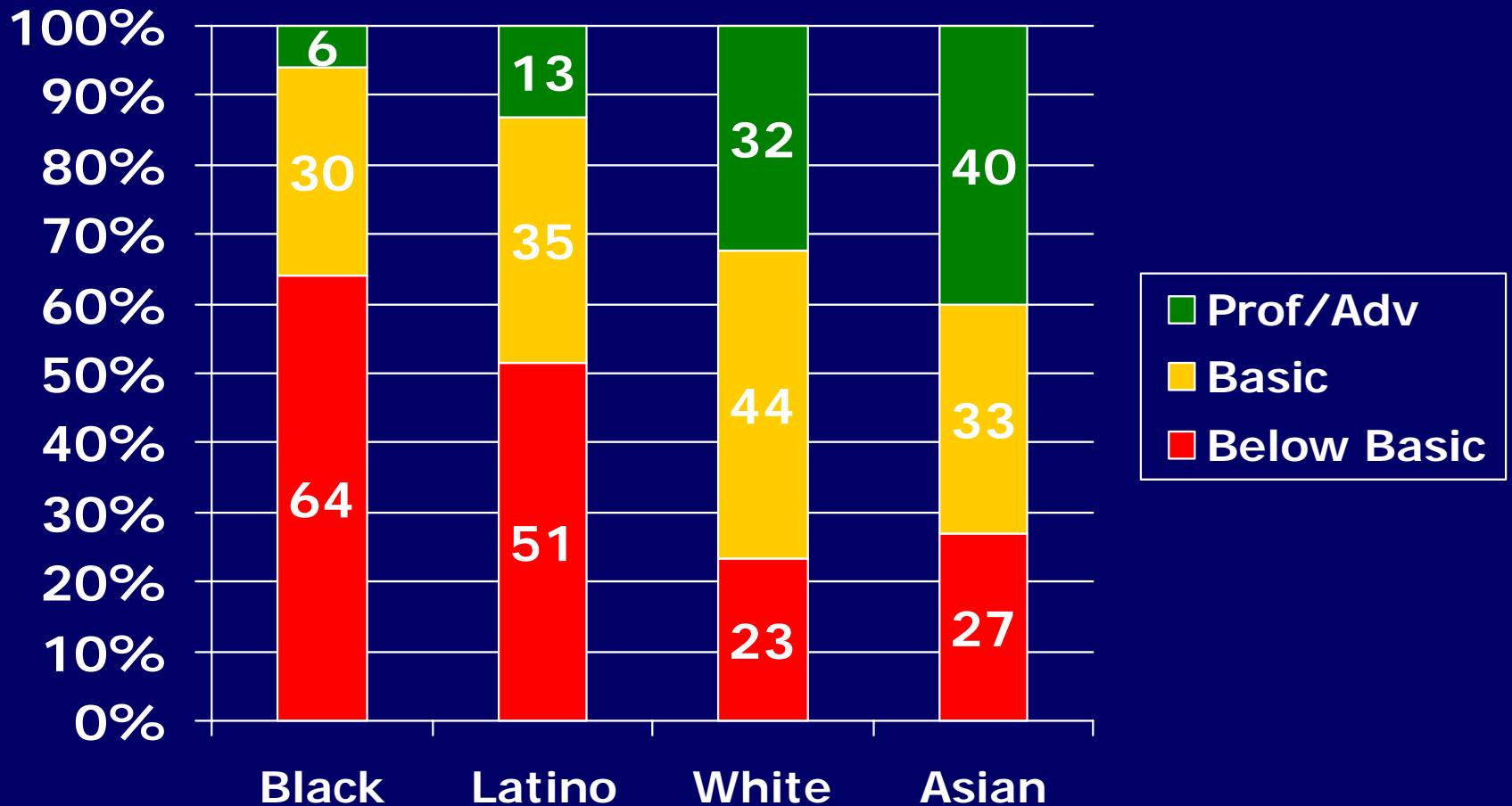
# Georgia NAEP Results 4th Grade Reading 2003



# Georgia Criterion-Referenced Competency Test 8th Grade Math 2003



# Georgia NAEP Results 8th Grade Math 2003



Source: USDOE, NCES, National Assessment of Educational Progress (NAEP)

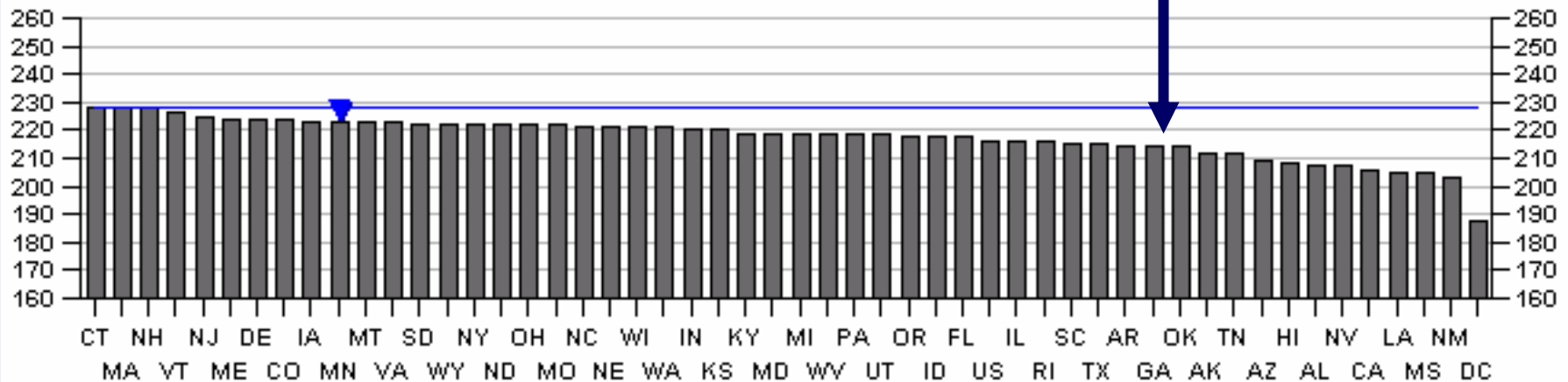
Relative to Other States?

# NAEP 4<sup>th</sup> Grade Reading: All

How do scores in Minnesota compare?

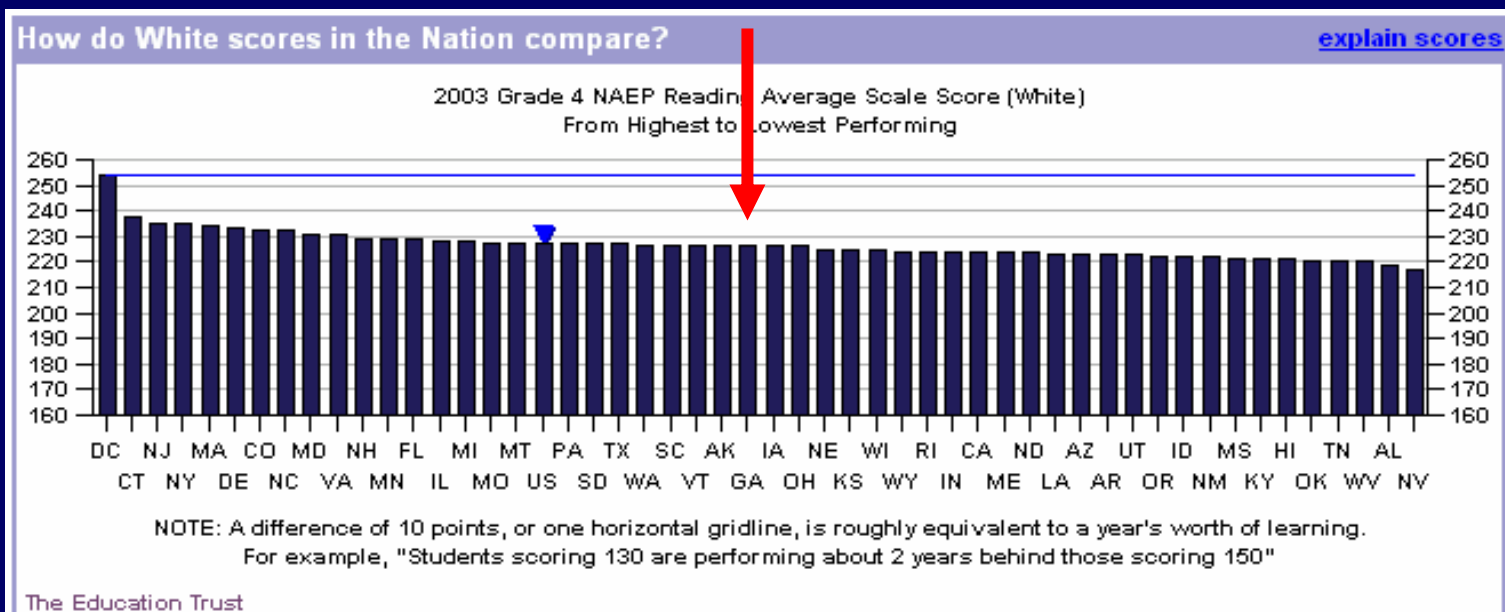
[explain scores](#)

2003 Grade 4 NAEP Reading Average Scale Score (All)  
From Highest to Lowest Performing



NOTE: A difference of 10 points, or one horizontal gridline, is roughly equivalent to a year's worth of learning.  
For example, "Students scoring 130 are performing about 2 years behind those scoring 150"

# White 4<sup>th</sup> graders: NAEP Reading

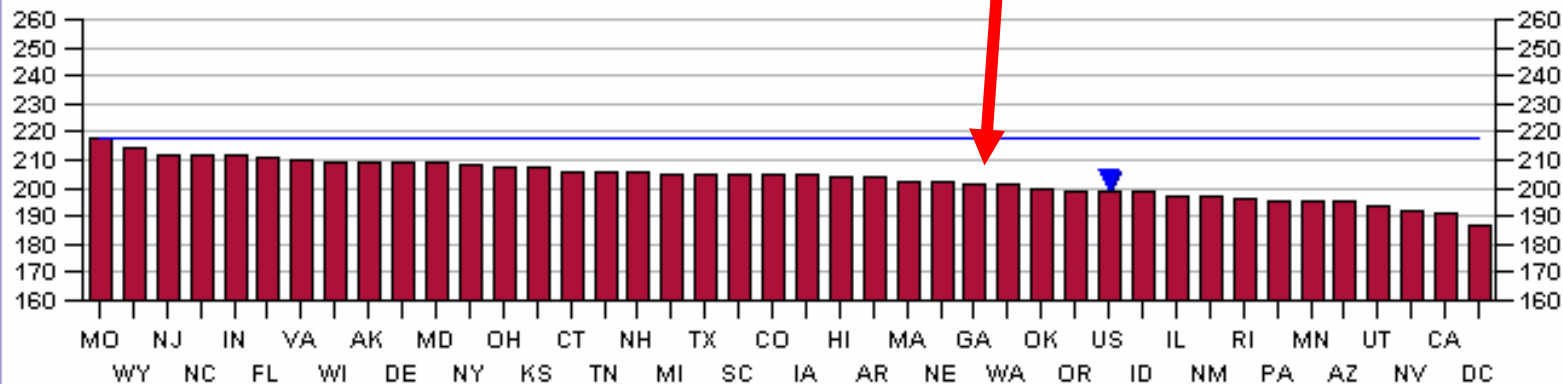


# Latino 4<sup>th</sup> Graders: NAEP Reading

How do Latino scores in the Nation compare?

[explain scores](#)

2003 Grade 4 NAEP Reading Average Scale Score (Latino)  
From Highest to Lowest Performing



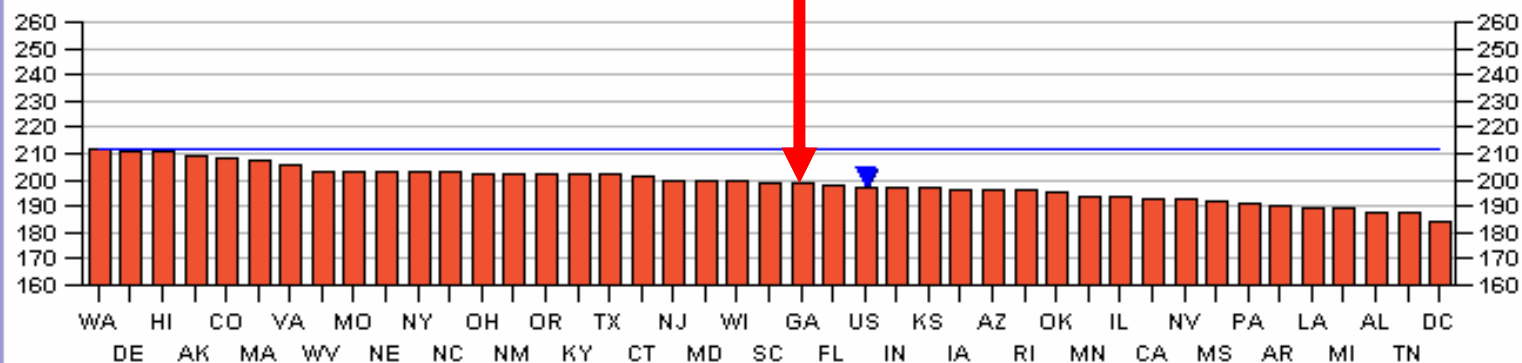
NOTE: A difference of 10 points, or one horizontal gridline, is roughly equivalent to a year's worth of learning.  
For example, "Students scoring 130 are performing about 2 years behind those scoring 150"

# Black 4<sup>th</sup> Graders: NAEP Reading

How do African American scores in the Nation compare?

[explain scores](#)

2003 Grade 4 NAEP Reading Average Scale Score (African American)  
From Highest to Lowest Performing

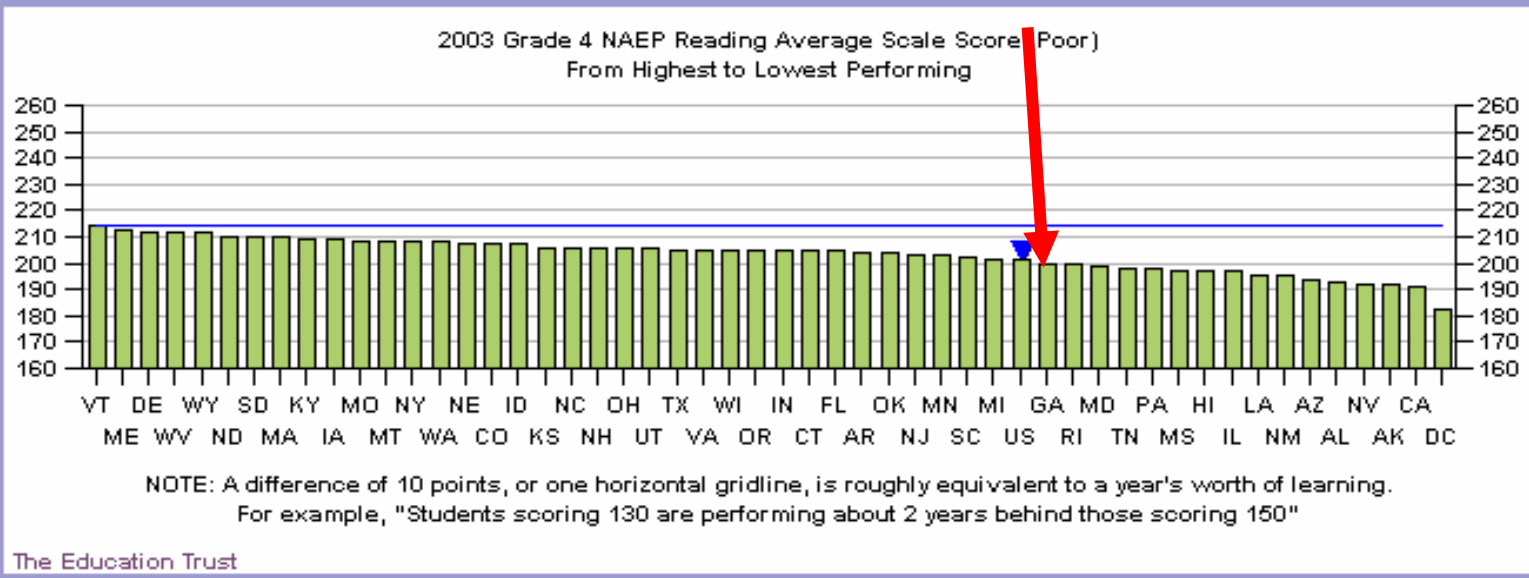


NOTE: A difference of 10 points, or one horizontal gridline, is roughly equivalent to a year's worth of learning.  
For example, "Students scoring 130 are performing about 2 years behind those scoring 150"

# Low-Income 4<sup>th</sup> Graders: NAEP READING

How do Poor scores in the Nation compare?

[explain scores](#)

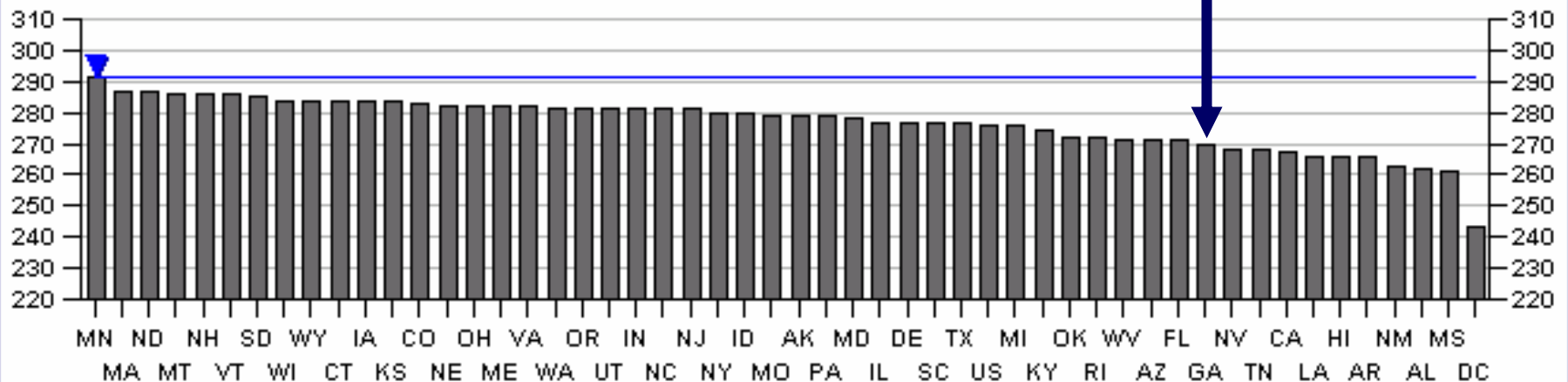


# NAEP 8<sup>th</sup> Grade Math: All

How do scores in Minnesota compare?

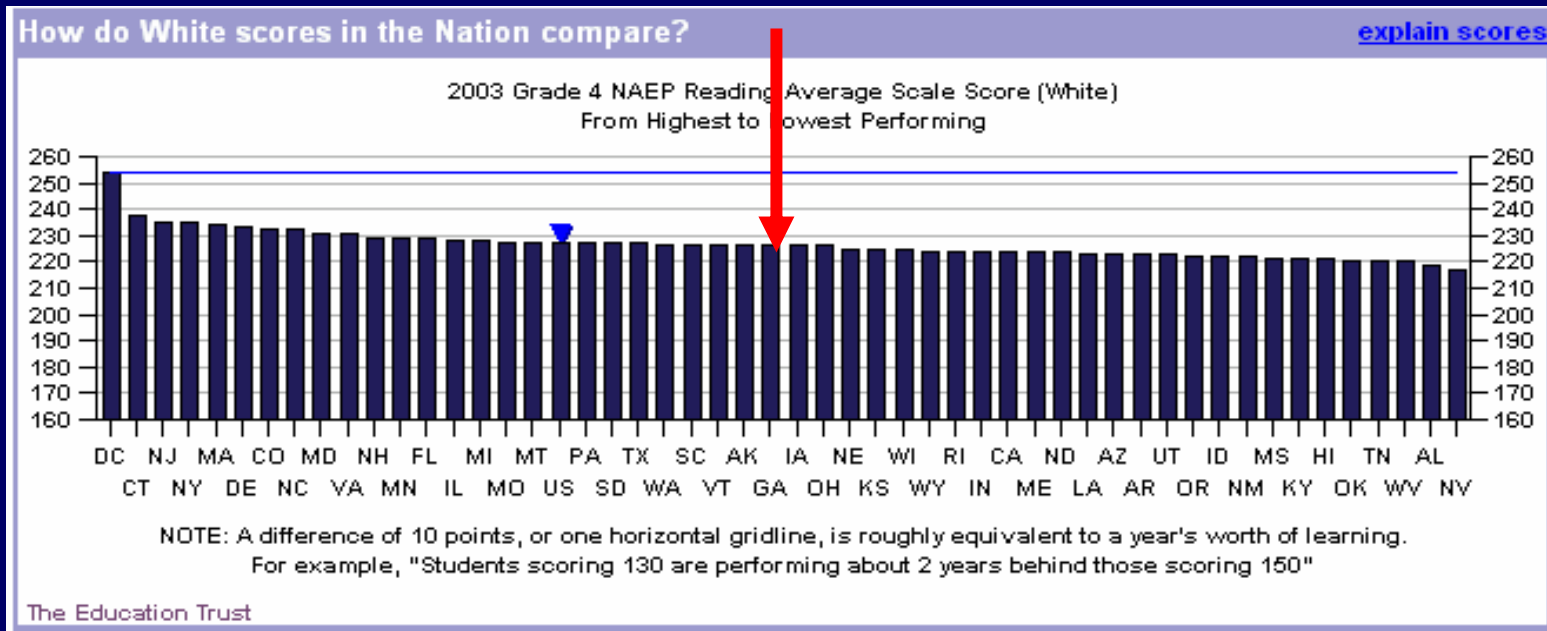
[explain scores](#)

2003 Grade 8 NAEP Math Average Scale Score (All)  
From Highest to Lowest Performing



NOTE: A difference of 10 points, or one horizontal gridline, is roughly equivalent to a year's worth of learning.  
For example, "Students scoring 130 are performing about 2 years behind those scoring 150"

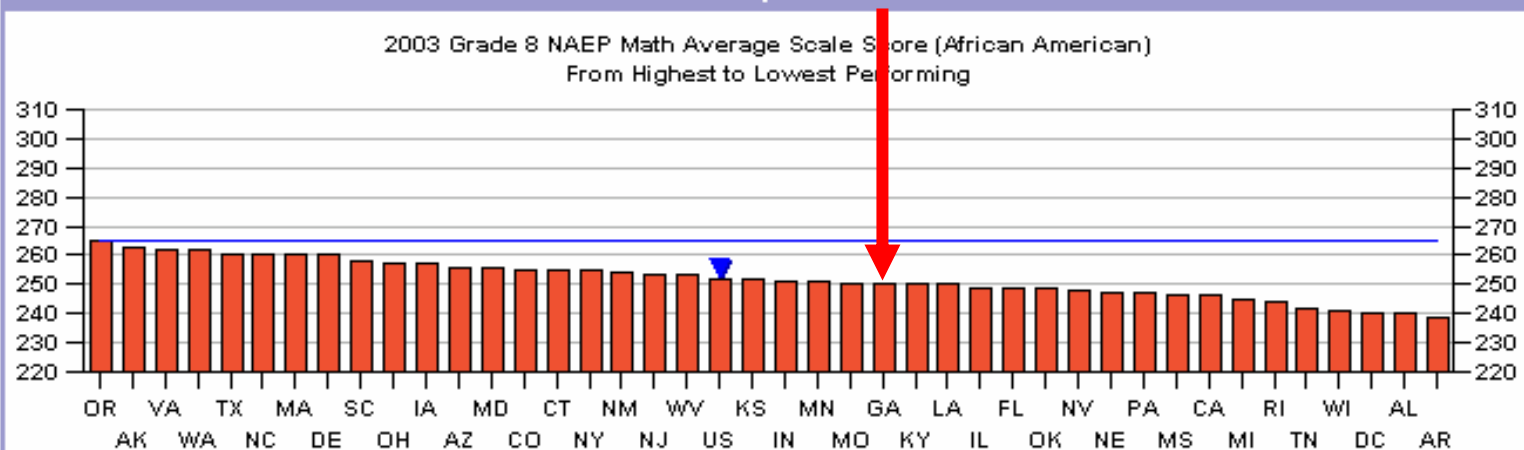
# White 8<sup>th</sup> Graders: NAEP Math



# Black 8th Graders? NAEP MATH

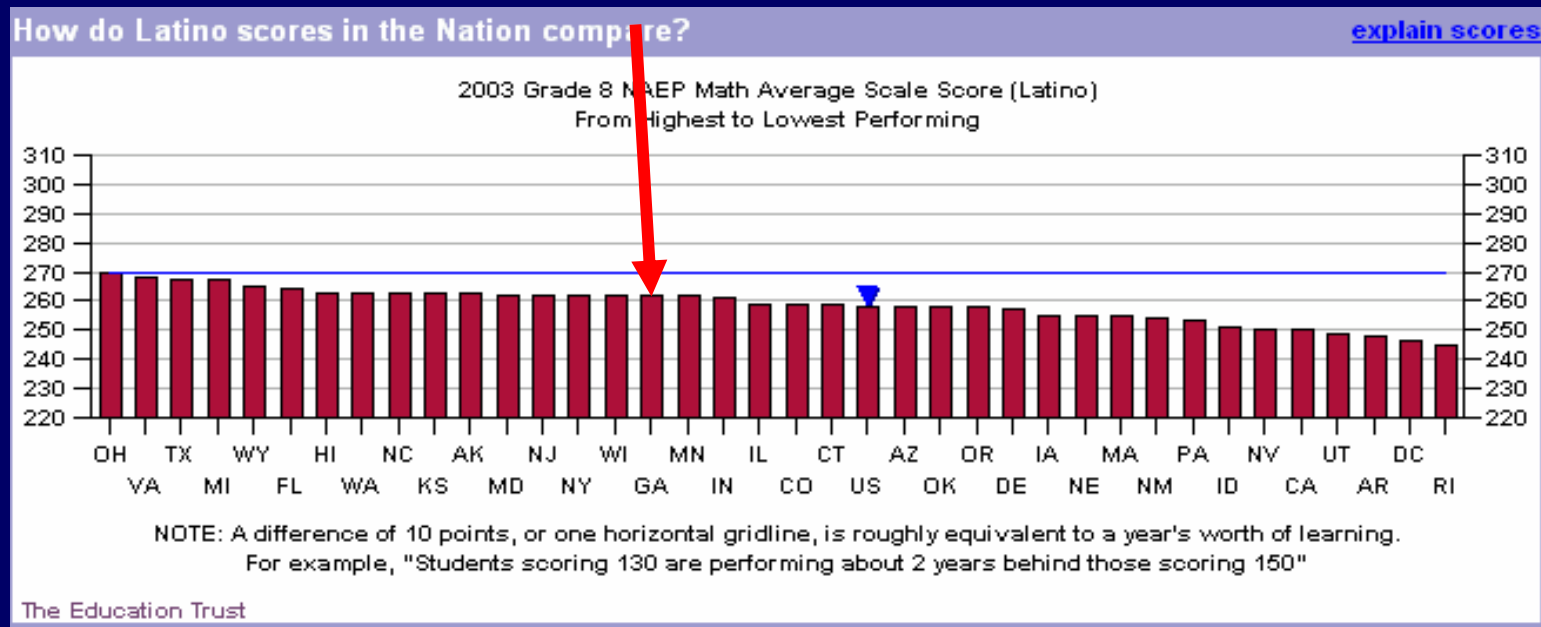
How do African American scores in the Nation compare?

[explain scores](#)



NOTE: A difference of 10 points, or one horizontal gridline, is roughly equivalent to a year's worth of learning.  
For example, "Students scoring 130 are performing about 2 years behind those scoring 150"

# Latino 8<sup>th</sup> Graders: NAEP Math

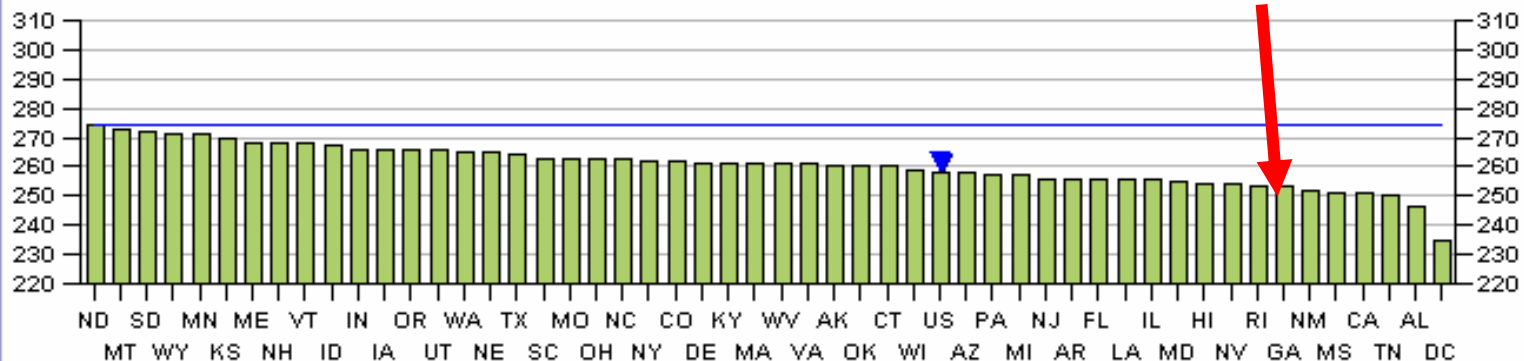


# Low Income 8th Graders? NAEP MATH

How do Poor scores in the Nation compare?

[explain scores](#)

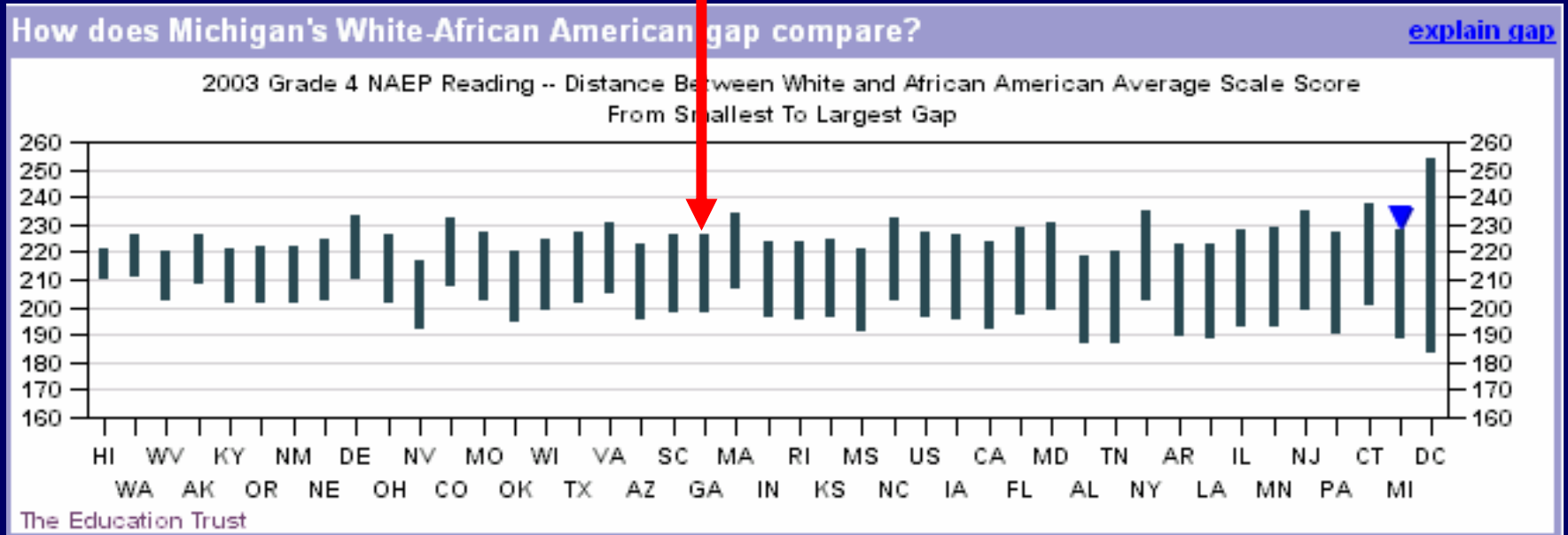
2003 Grade 8 NAEP Math Average Scale Score (Poor)  
From Highest to Lowest Performing



NOTE: A difference of 10 points, or one horizontal gridline, is roughly equivalent to a year's worth of learning.  
For example, "Students scoring 130 are performing about 2 years behind those scoring 150"

Gaps Between Groups?

# Black-White Gap: 4<sup>th</sup> Grade Reading

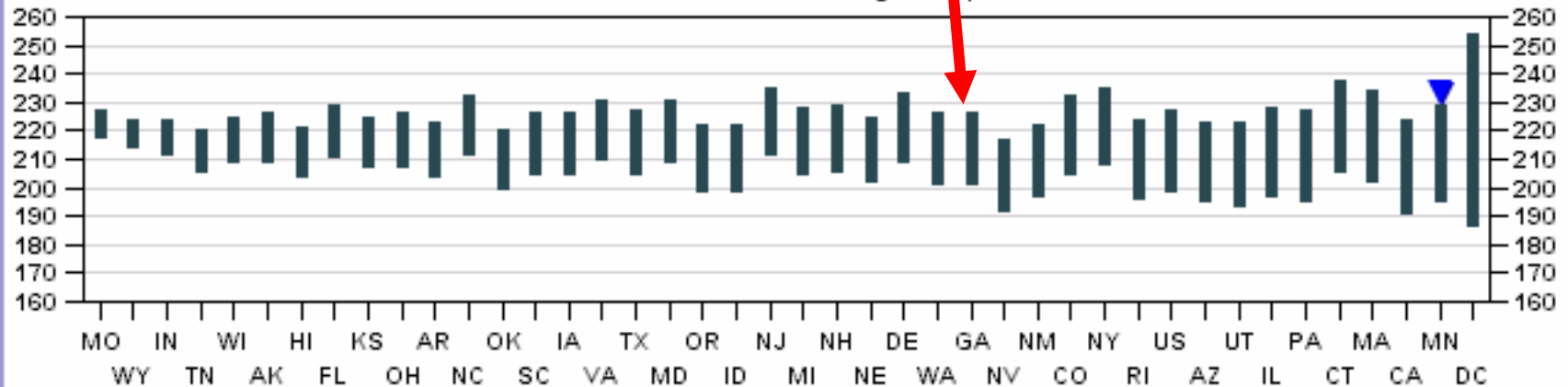


# Latino-White Gap: Grade 4 Reading

How does Minnesota's White-Latino gap compare?

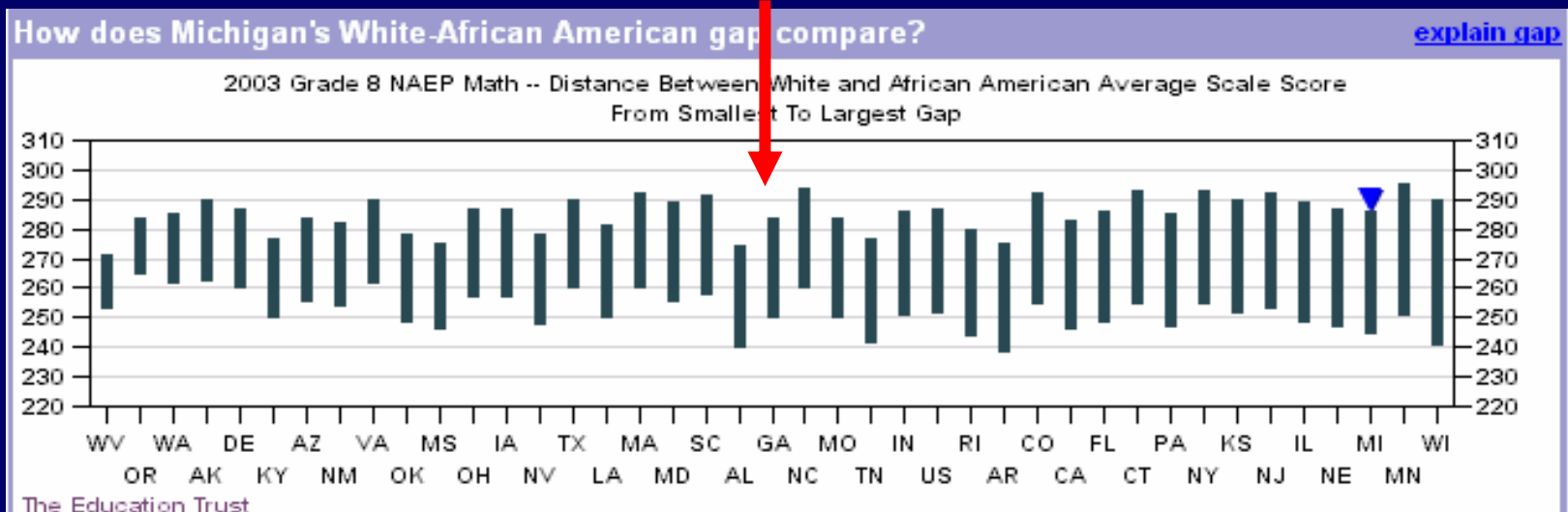
[explain gap](#)

2003 Grade 4 NAEP Reading -- Distance Between White and Latino Average Scale Score  
From Smallest To Largest Gap

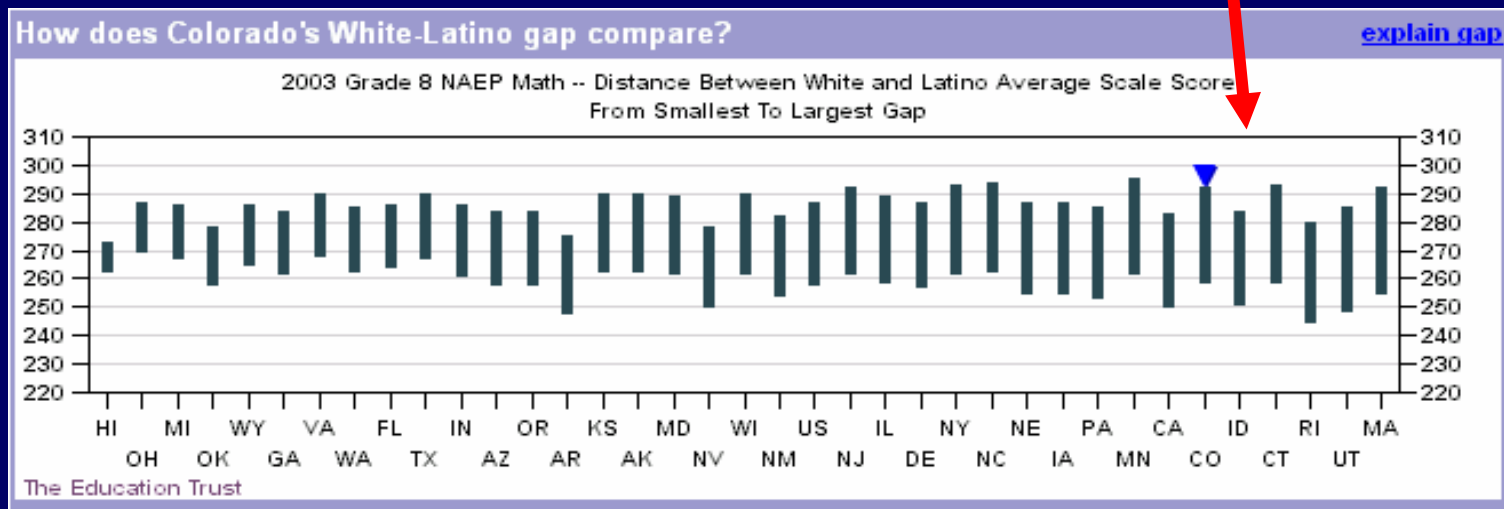


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# Black-White Gap: NAEP 8<sup>th</sup> Grade Math



# Latino-White Gap: 8<sup>th</sup> Grade Math

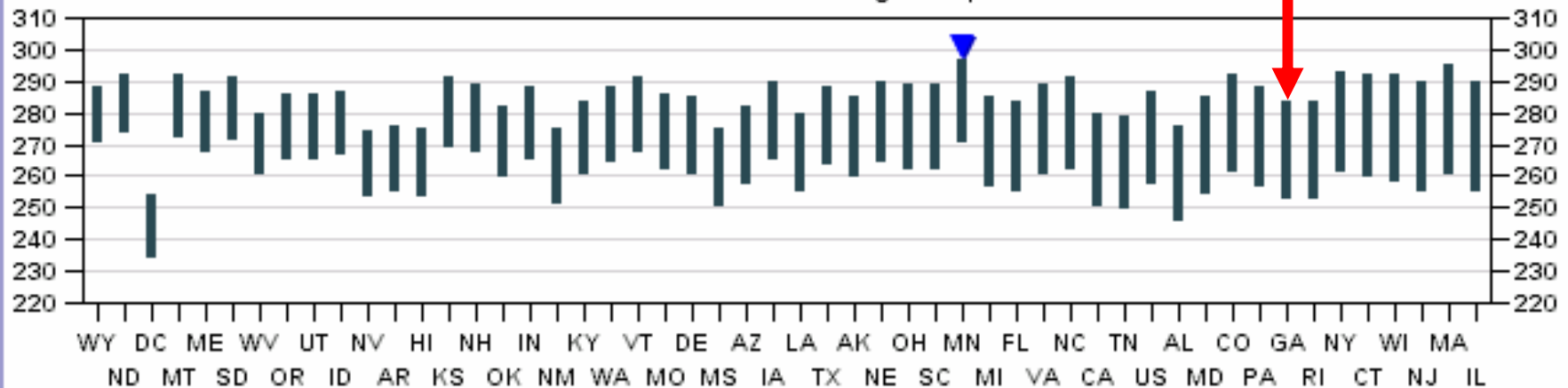


# Poor/Non-Poor Gap: 8<sup>th</sup> Grade Math

How does Minnesota's NonPoor-Poor gap compare?

[explain gap](#)

2003 Grade 8 NAEP Math -- Distance Between NonPoor and Poor Average Scale Score  
From Smallest To Largest Gap



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Implications for the Future?

# GA Education “Pipeline”

	K-12 Enrollment	2-Year Colleges	4-Year Colleges
Black	38%	37%	25%
Latino	5%	2%	2%

*Organizing for  
Success:  
Four Things We  
Know From the  
Biggest  
Improvers*

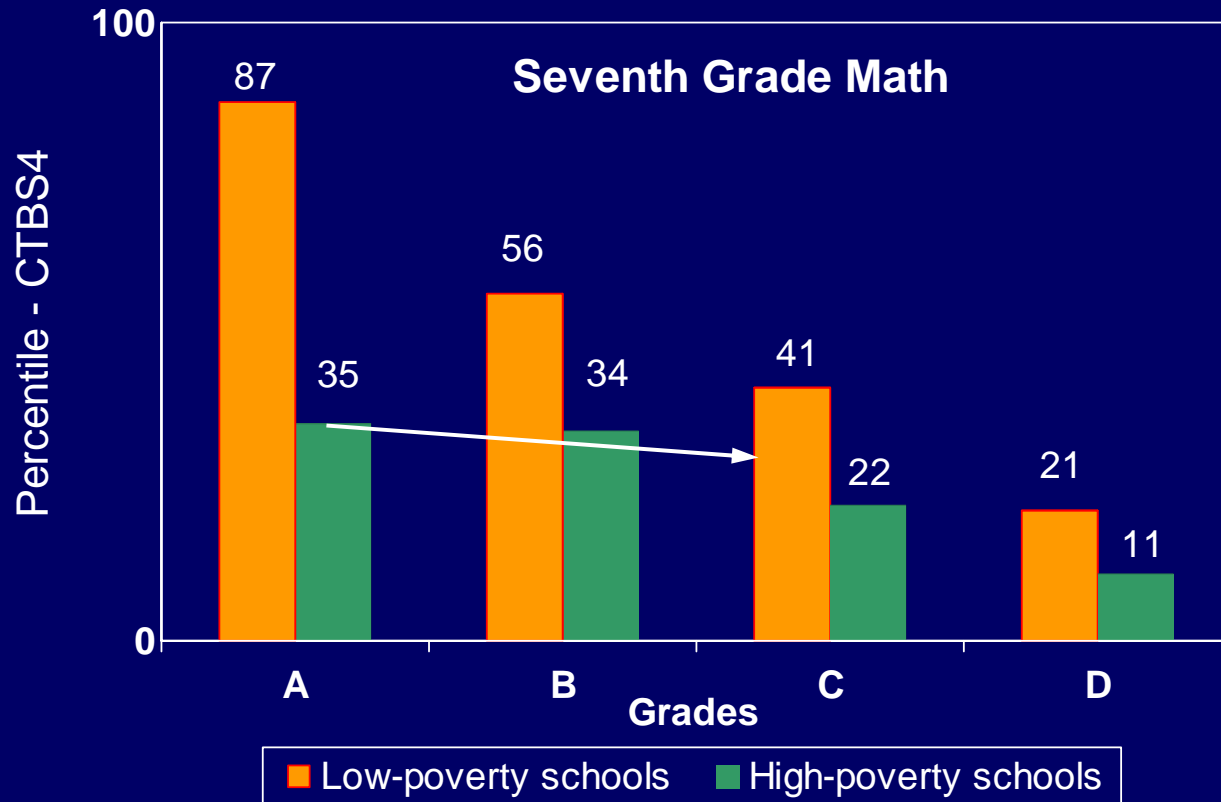
Thing 1: They Do Not Leave  
Anything About Teaching and  
Learning to Chance

In most schools and districts,  
most of the really important  
decisions about what students  
should learn and what kind of  
work is “good enough” left to  
individual teachers.

# Result? A System That:

- Doesn't expect very much from MOST students; and,
- Expects much less from some types of students than others.

# 'A' Work in Poor Schools Would Earn 'Cs' in Affluent Schools



Source: Prospects (ABT Associates, 1993), in "Prospects: Final Report on Student Outcomes", PES, DOE, 1997.

Students can do  
no better than  
the assignments  
they are given...

# Grade 10 Writing Assignment

A frequent theme in literature is the conflict between the individual and society. From literature you have read, select a character who struggled with society. In a well-developed essay, identify the character and explain why this character's conflict with society is important.

# Grade 10 Writing Assignment

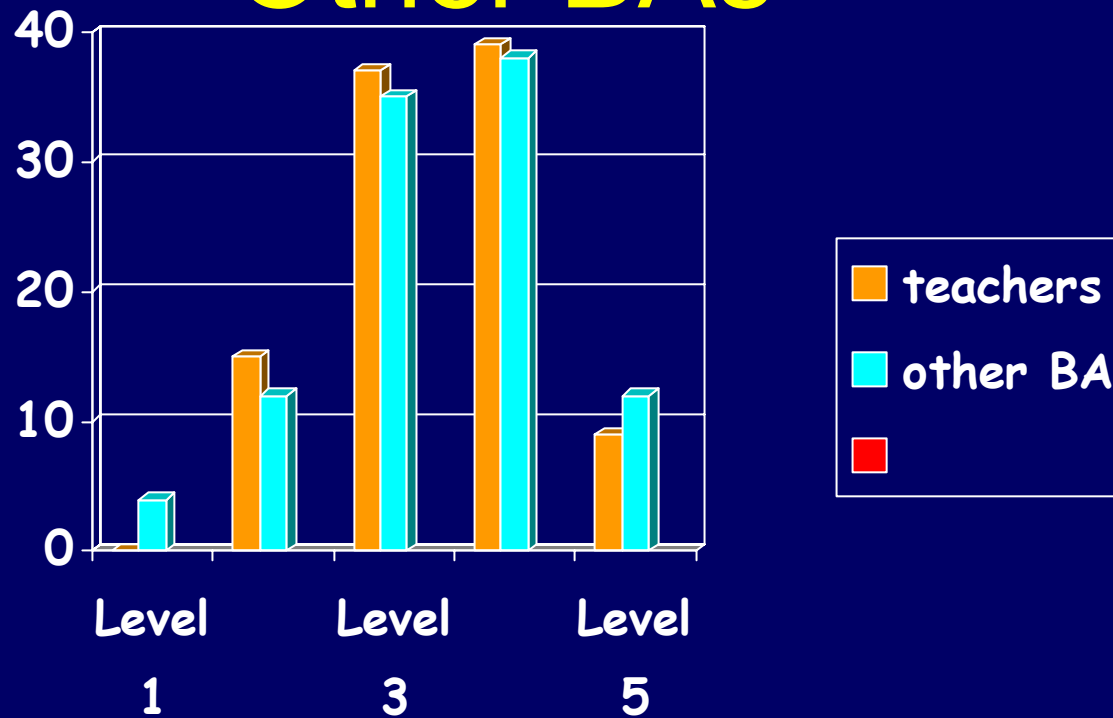
Write a composition of at least 4 paragraphs on Martin Luther King's most important contribution to this society.

Illustrate your work with a neat cover page. Neatness counts.

# How do teachers decide what to teach during a given week, month? One district's survey...

- District curriculum: 12%
- Textbook: 30%
- “My own head”: 40%

# Math Literacy of Teachers vs. Other BAs



# Description:

## Quantitative Literacy Level 3

- *CAN* Determine correct change using information on a menu
- *CAN* Use information stated in news article to calculate amount of money it takes to raise a child
- *CAN'T* Determine shipping and total costs on an order form for items in a catalog
- *CAN'T* Use information in news article to calculate difference in time for completing a race

In math, most likely to be  
textbook.

But think about what that means.

# High Performing Schools and Districts

- Have clear and specific goals for what students should learn in every grade, including the order in which they should learn it;
- Provide teachers with common curriculum, assignments;
- Assess students every 4-8 weeks to measure progress;
- ACT immediately on the results of those assessments.

Thing 2: High Performing  
Schools, Districts Insist on  
Rigor All the Way Up the Line

# Most High School Grads Go On To Postsecondary Within 2 Years

Entered Public 2-Year Colleges	26%
Entered 4-Year Colleges	45%
Other Postsecondary	4%
<b>Total</b>	<b>75%</b>

**Source:** NELS: 88, Second (1992) and Third (1994) Follow up; in, USDOE, NCES, "Access to Postsecondary Education for the 1992 High School Graduates", 1998, Table 2.

# College Freshmen Not Returning for Sophomore Year

<b>4 year Colleges</b>	<b>26%</b>
<b>2 year Colleges</b>	<b>45%</b>

**Source:** Tom Mortensen, Postsecondary Opportunity, No. 89, November 1999

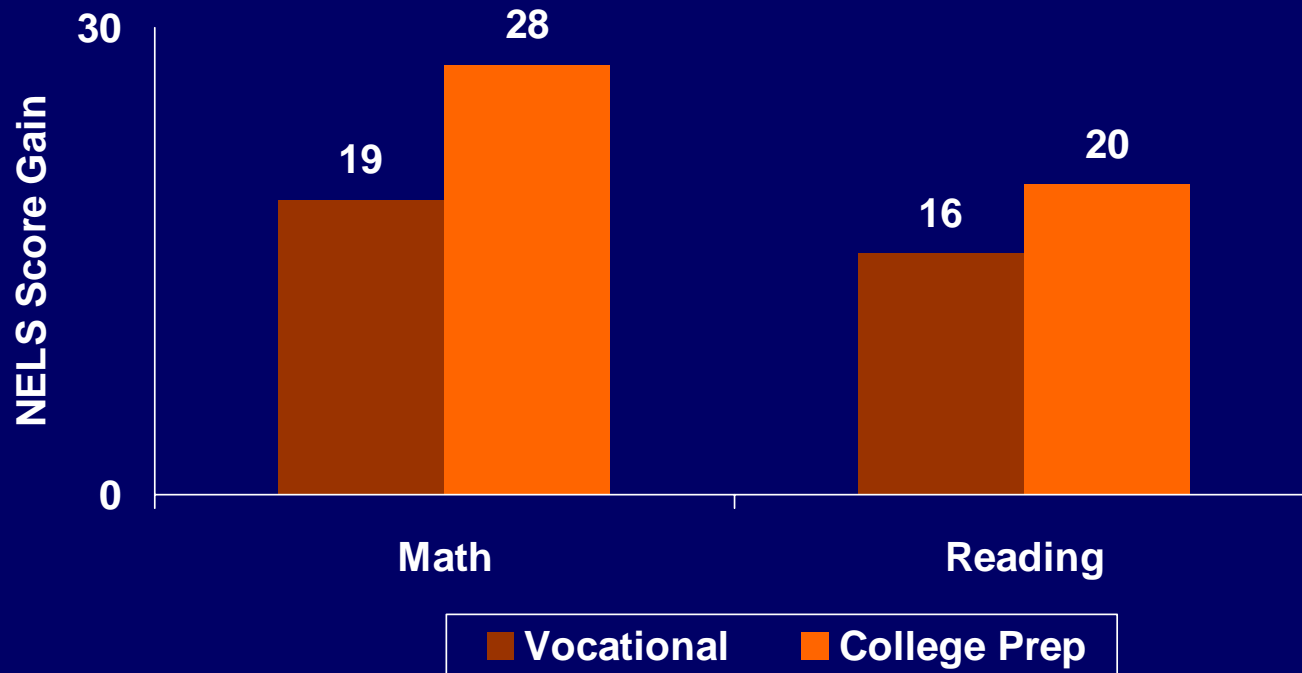
Transcript Study: single biggest  
predictor of college success is  
**QUALITY AND INTENSITY OF  
HIGH SCHOOL CURRICULUM**

Cliff Adelman, *Answers in the Tool Box*, U.S. Department of  
Education.

But college prep curriculum  
has benefits far beyond  
college.

Students of all sorts will learn  
more...

# Low Quartile Students Gain More From College Prep Courses\*



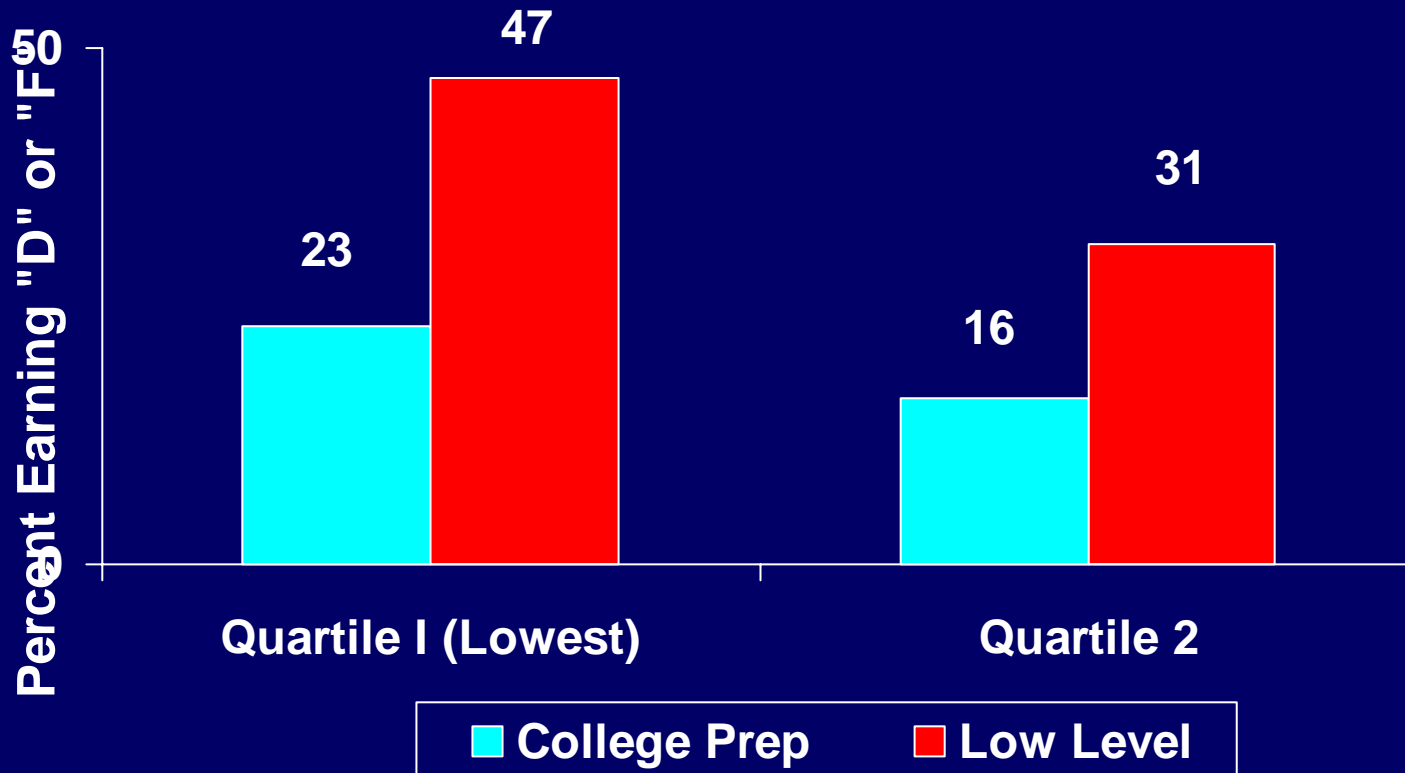
**\*Grade 8-grade 12 test score gains based on 8th grade achievement.**

*Source: USDOE, NCES, Vocational Education in the United States: Toward the Year 2000, in Issue Brief: Students Who Prepare for College and Vocation*

They will also fail less often...

# Challenging Curriculum Results in Lower Failure Rates, Even for Lowest Achievers

Ninth-grade English performance, by high/low level course, and eighth-grade reading achievement quartiles



Source: SREB, "Middle Grades to High School: Mending a Weak Link". Unpublished Draft, 2002.

And they'll be better prepared  
for the workplace.

Leading districts, states  
making college prep the  
default curriculum.

Thing 3: They provide extra help to students who need it.

# When Kids Are Behind, Schools Must Provide More Instruction and Support:

- Kentucky provides extra time for struggling students in high-poverty schools
- Maryland offers extra dollars for 7th and 8th graders who need more support

And if you don't live in a smart  
state?

YOU JUST HAVE TO BE MORE  
CREATIVE.

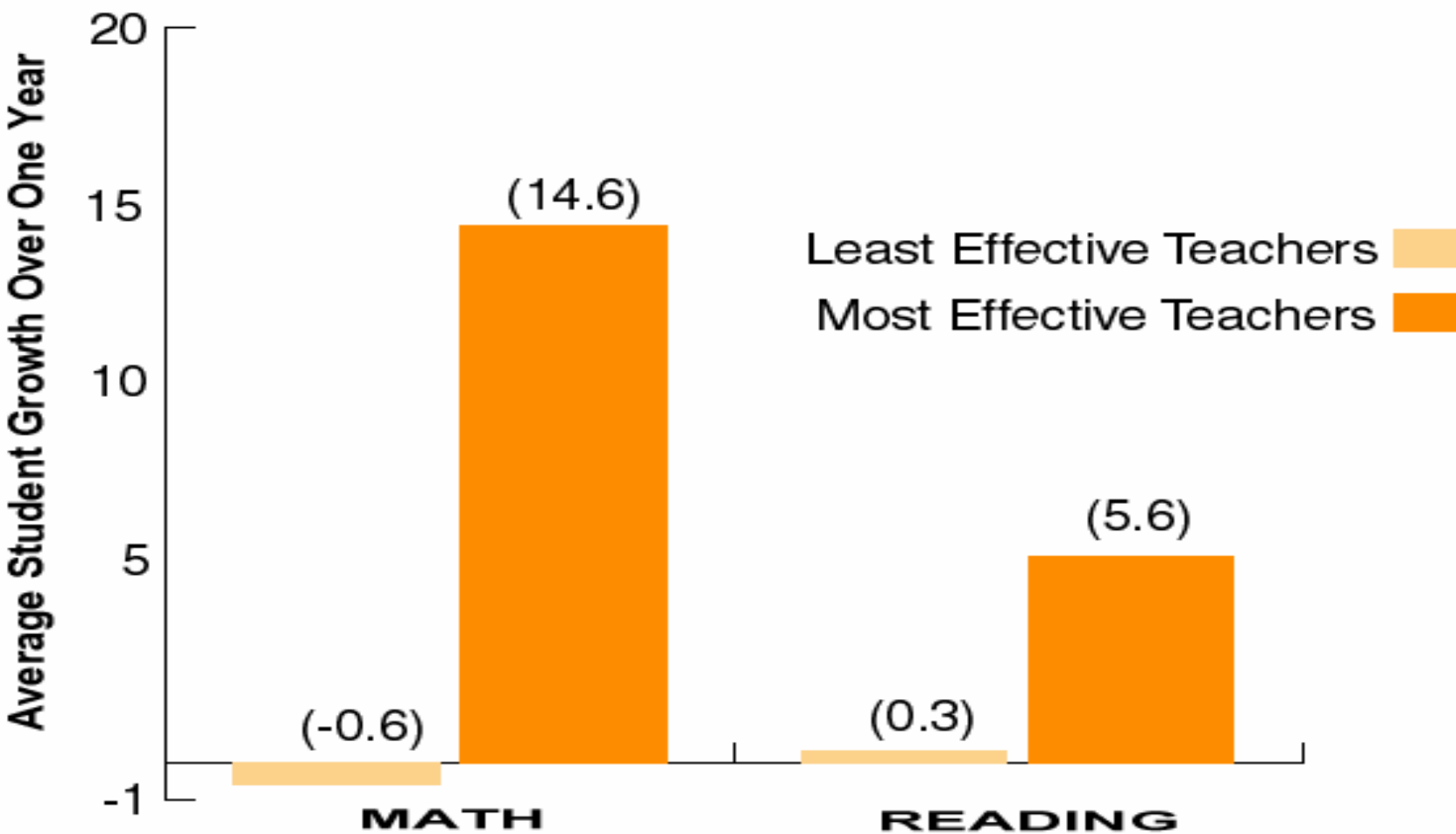
Many schools, districts finding  
ways to double, even triple,  
amount of time spent on literacy,  
math.

P.S. You have to be clear about what should happen in that extra time, though.

Thing 4: Good Teachers  
Matter More Than Anything  
Else

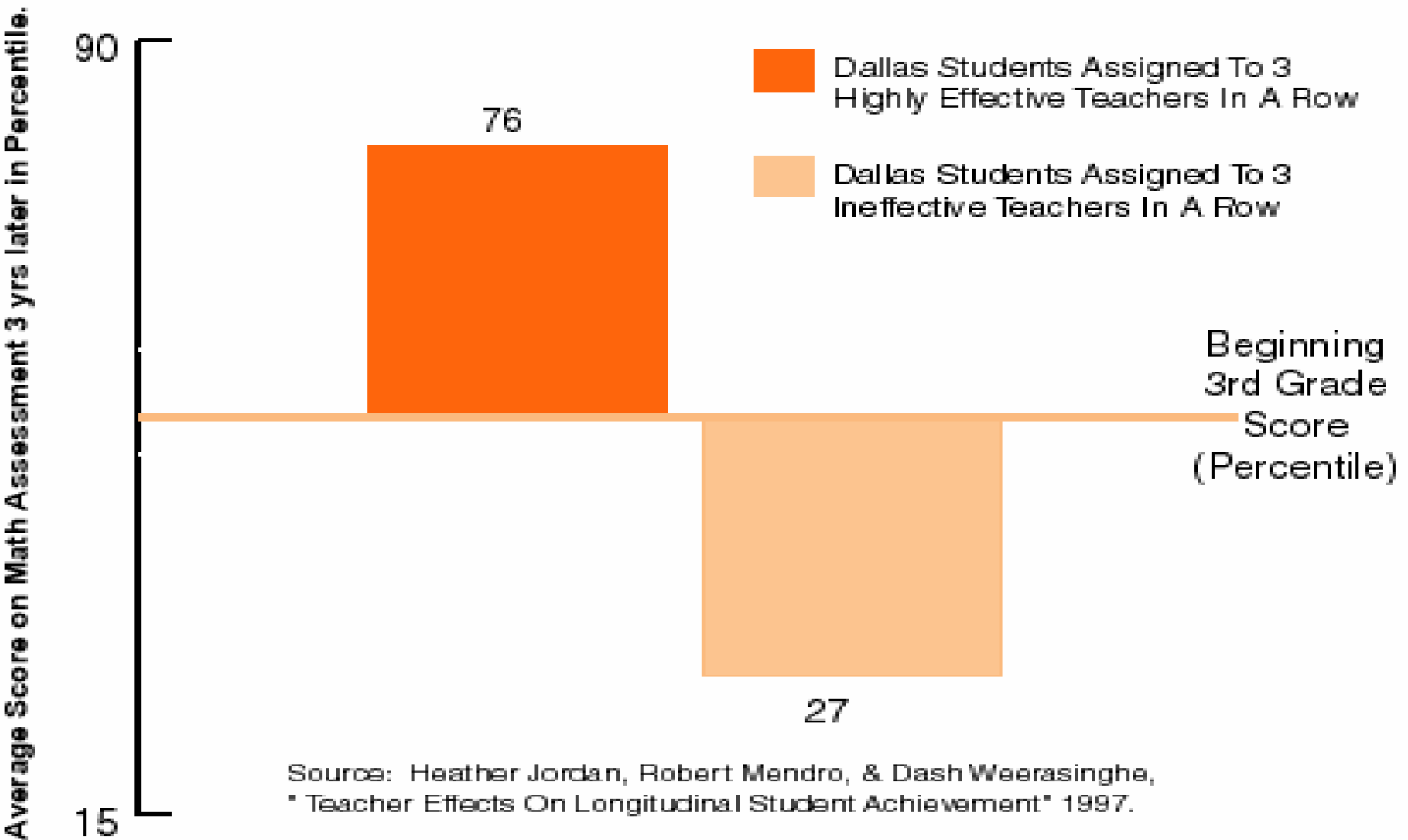
And the impact on students is astonishing. See for yourself.

## Boston Students with Effective Teachers Showed Greater Gains in Reading and

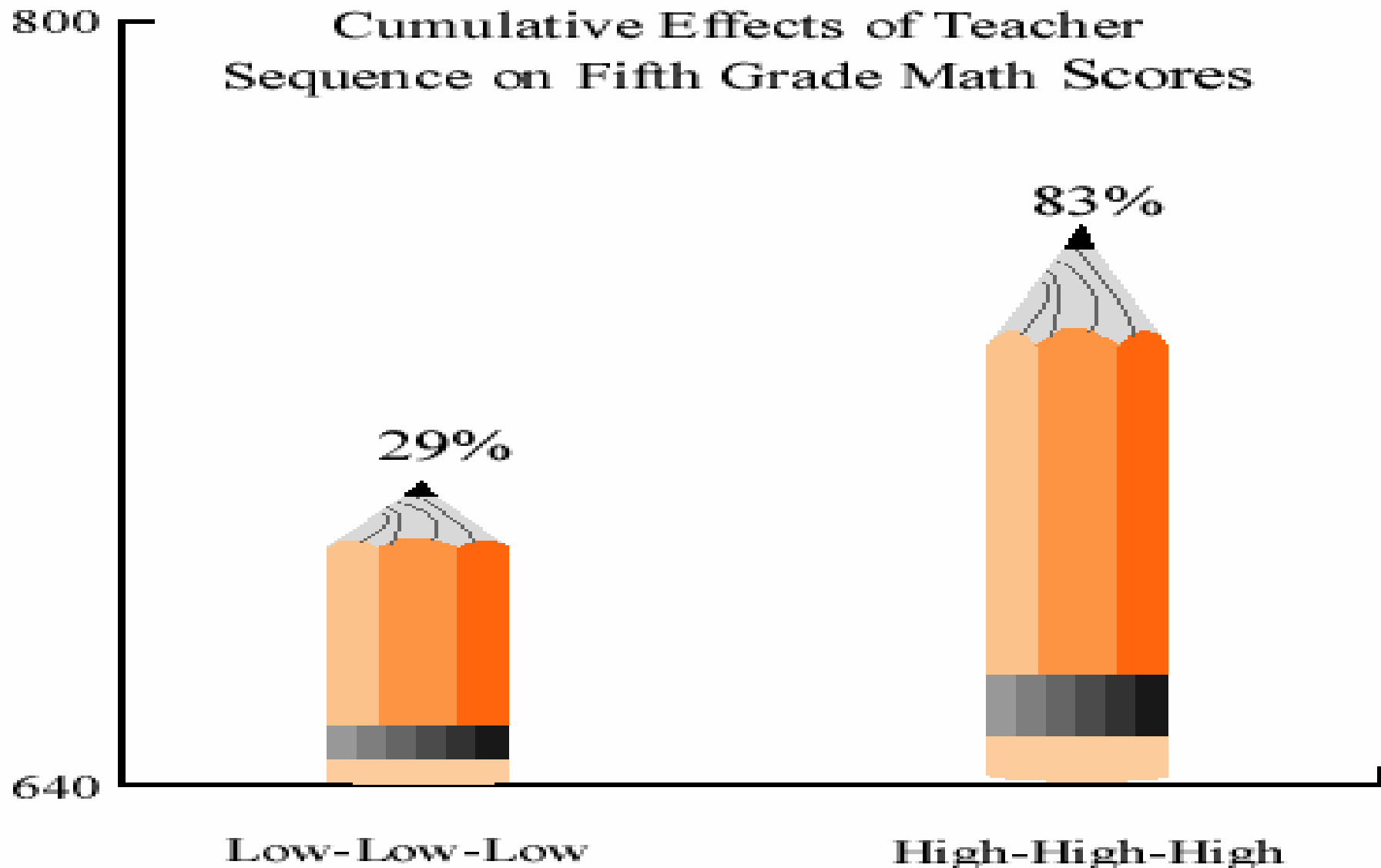


Source: Boston Public Schools, "High School Restructuring," March 9, 1998.

# Effects On Students' Math Scores In Dallas (Grades 3-5)



# Cumulative Effects of Teacher Sequence on Fifth Grade Math Scores

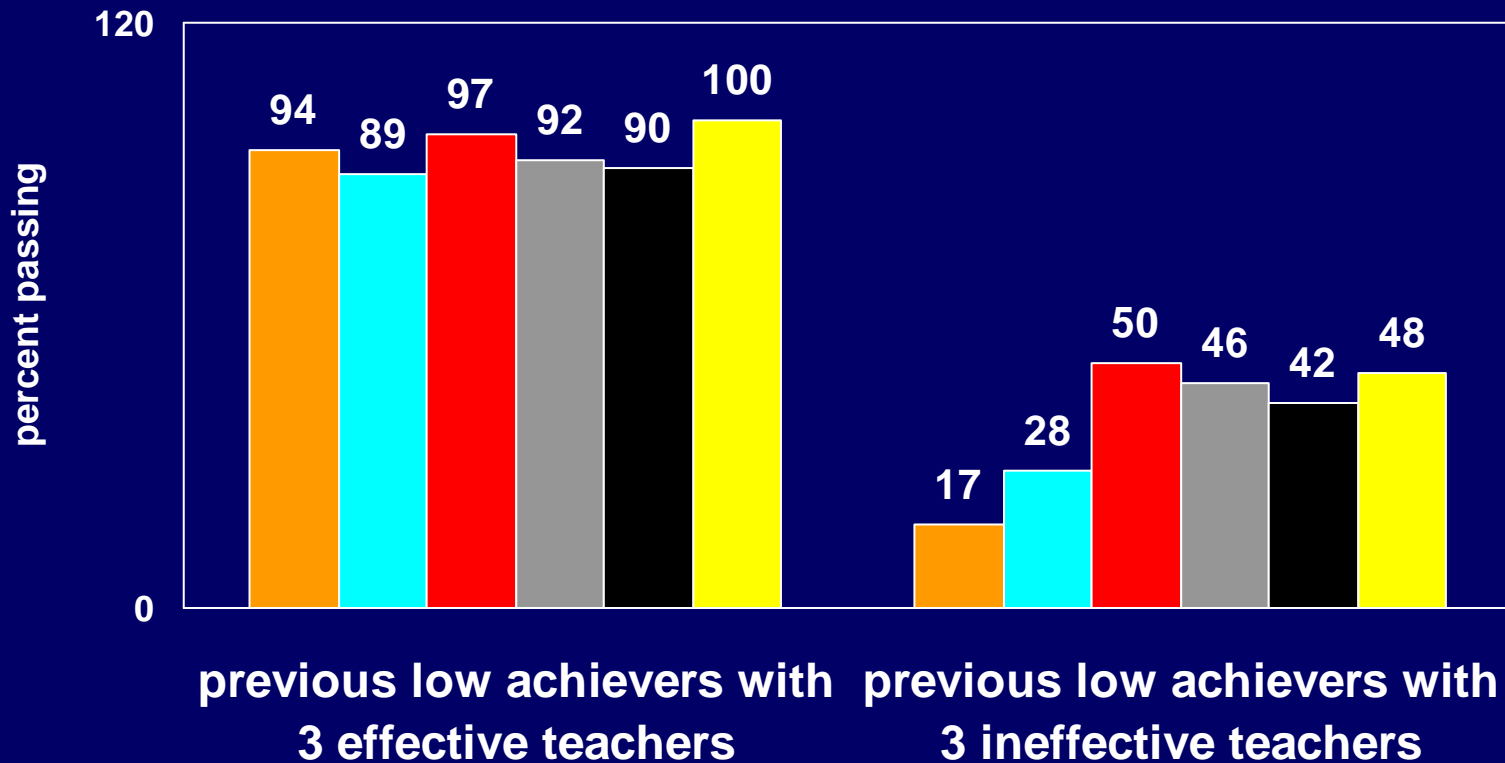


Jordan, Heath et al., Robert L. Mendro, and Dash Weeasinghe, "Teacher Effects on Longitudinal Student Achievement," Dallas Public Schools, 1997, Table 3.

# Low-achievers become high achievers with effective teachers

Pass rates of previous low-achieving students according to the effectiveness of their teachers

## MATHEMATICS



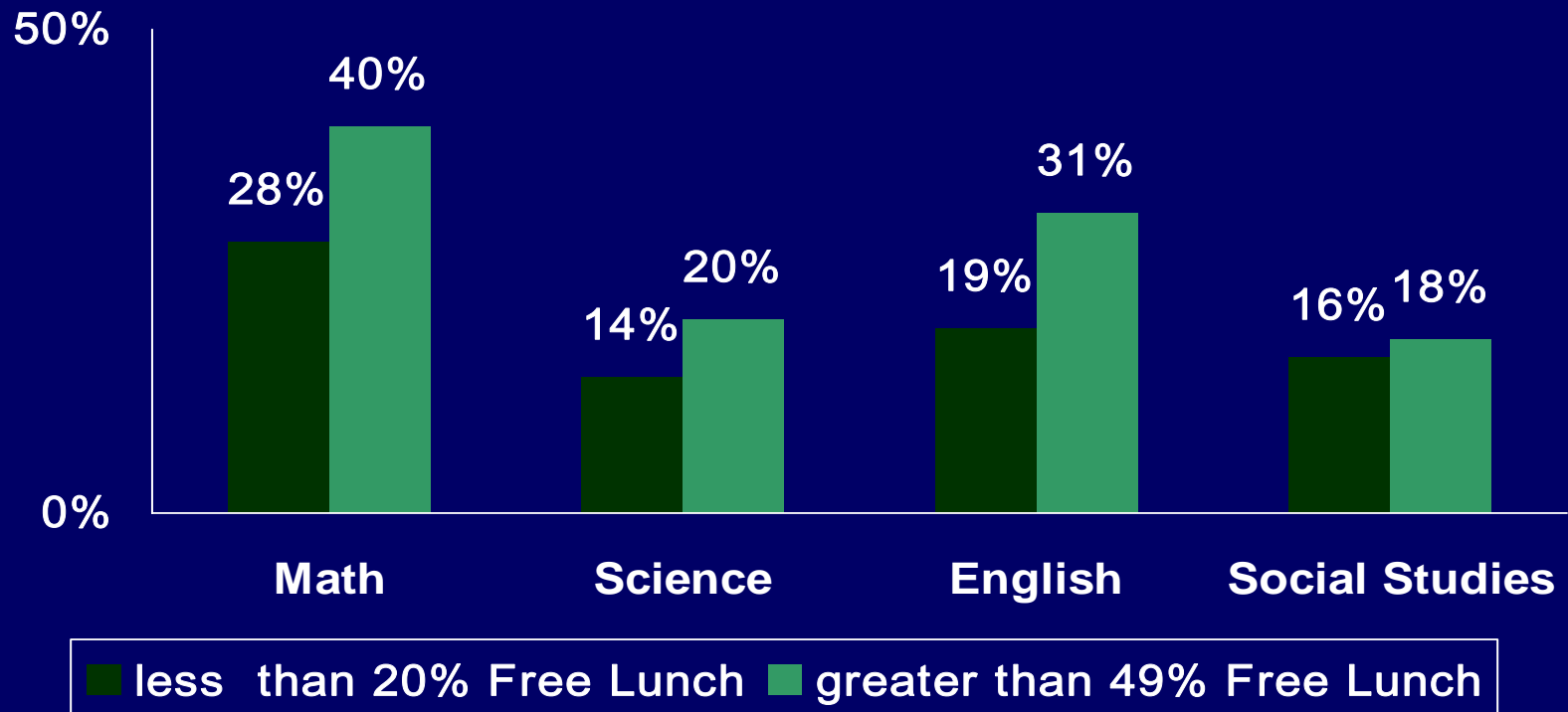
Most teachers--like most other professionals--can get more and more effective.

Accordingly, smart states,  
districts do two important  
things:

- STOP drive-by workshops;
- invest in intensive, focused professional development.

In the meantime, though,  
we've got to work toward a  
more equitable distribution of  
teachers.

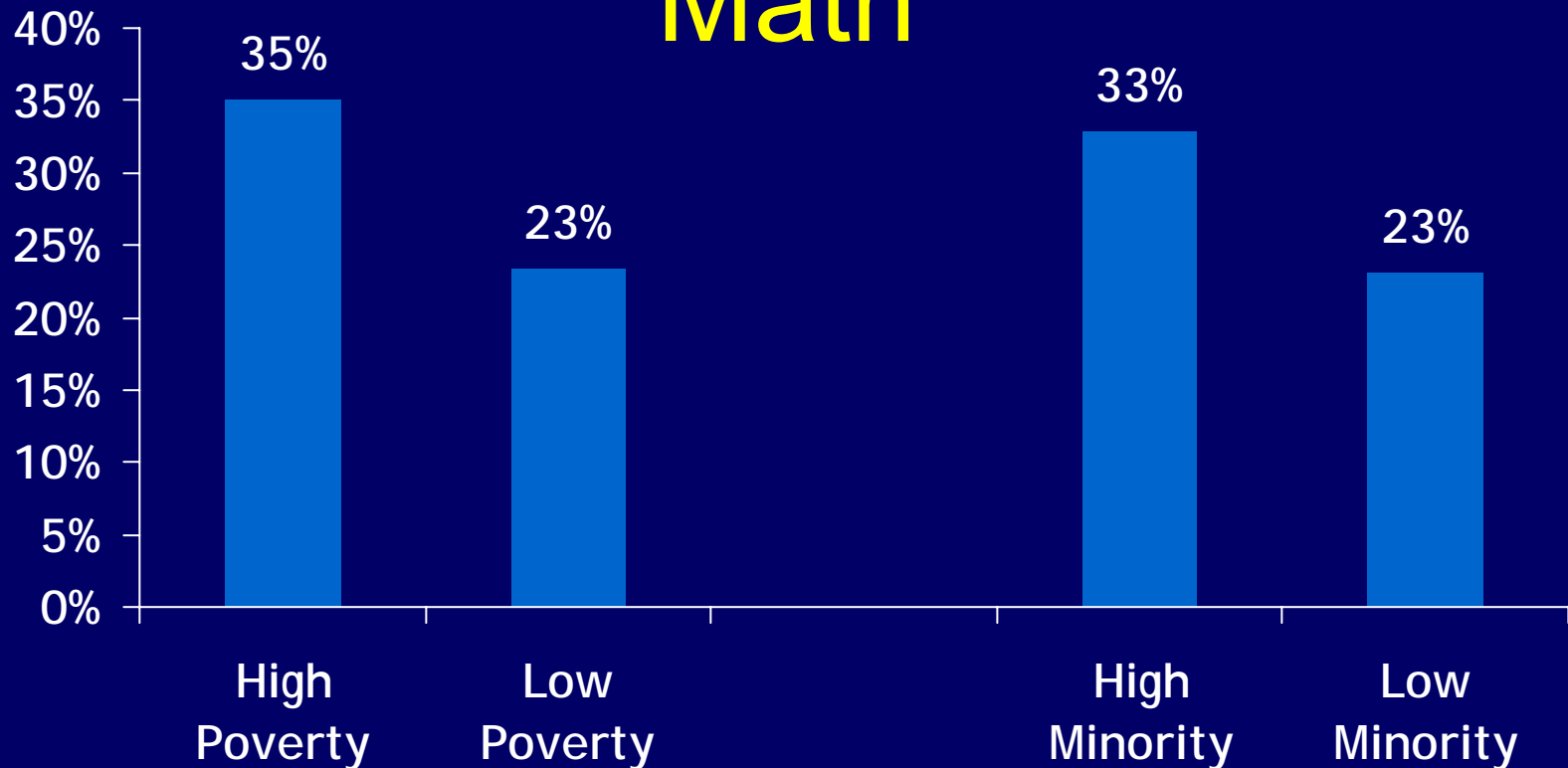
# Classes in High Poverty High Schools More Often Taught by Misassigned\* Teachers



\*Teachers who lack a major or minor in the field

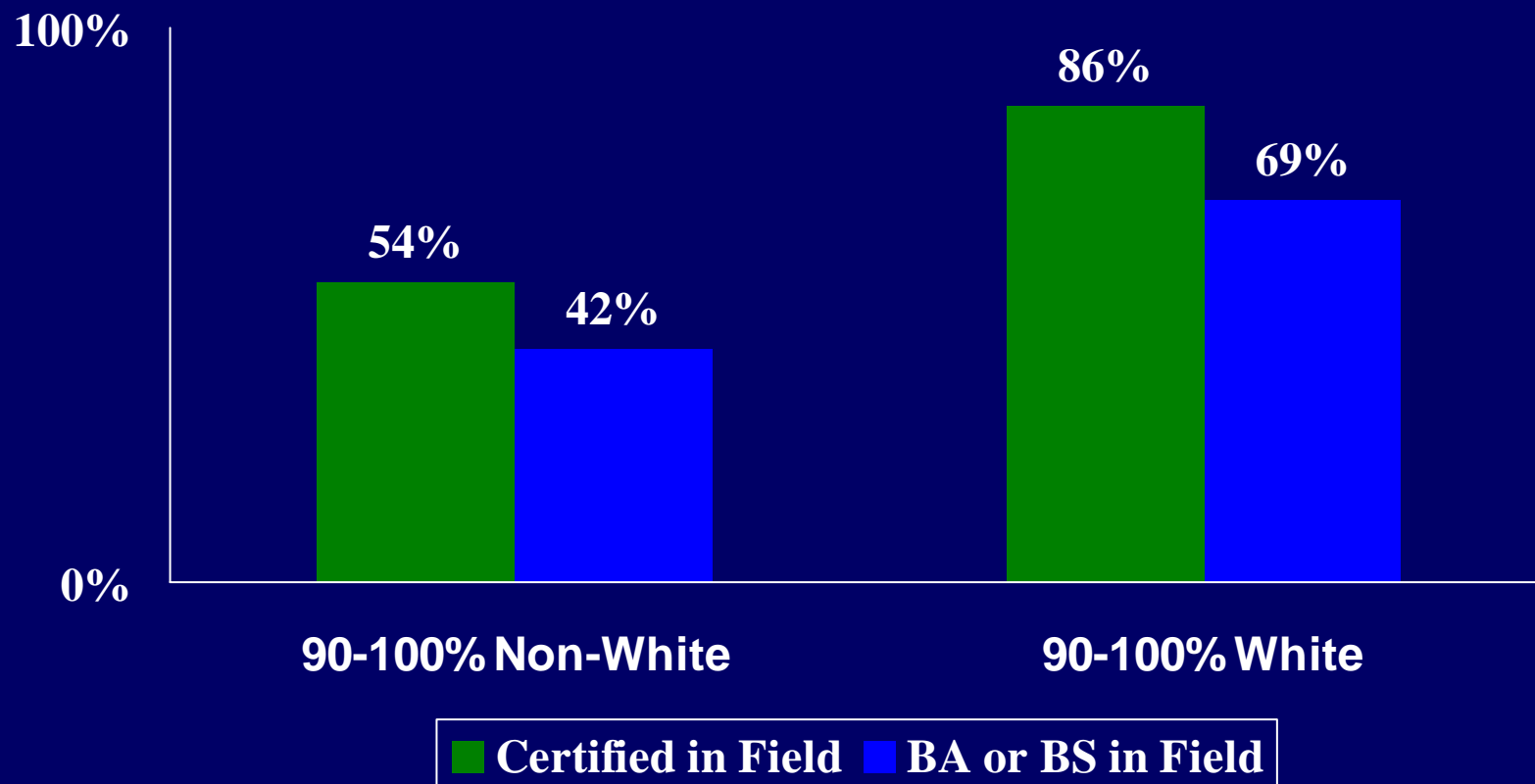
Source: National Commission on Teaching and America's Future, *What Matters Most: Teaching for America's Future* (p.16) 1996.

# Percent High School Math Classes Whose Teachers Have No Major or Minor in Math



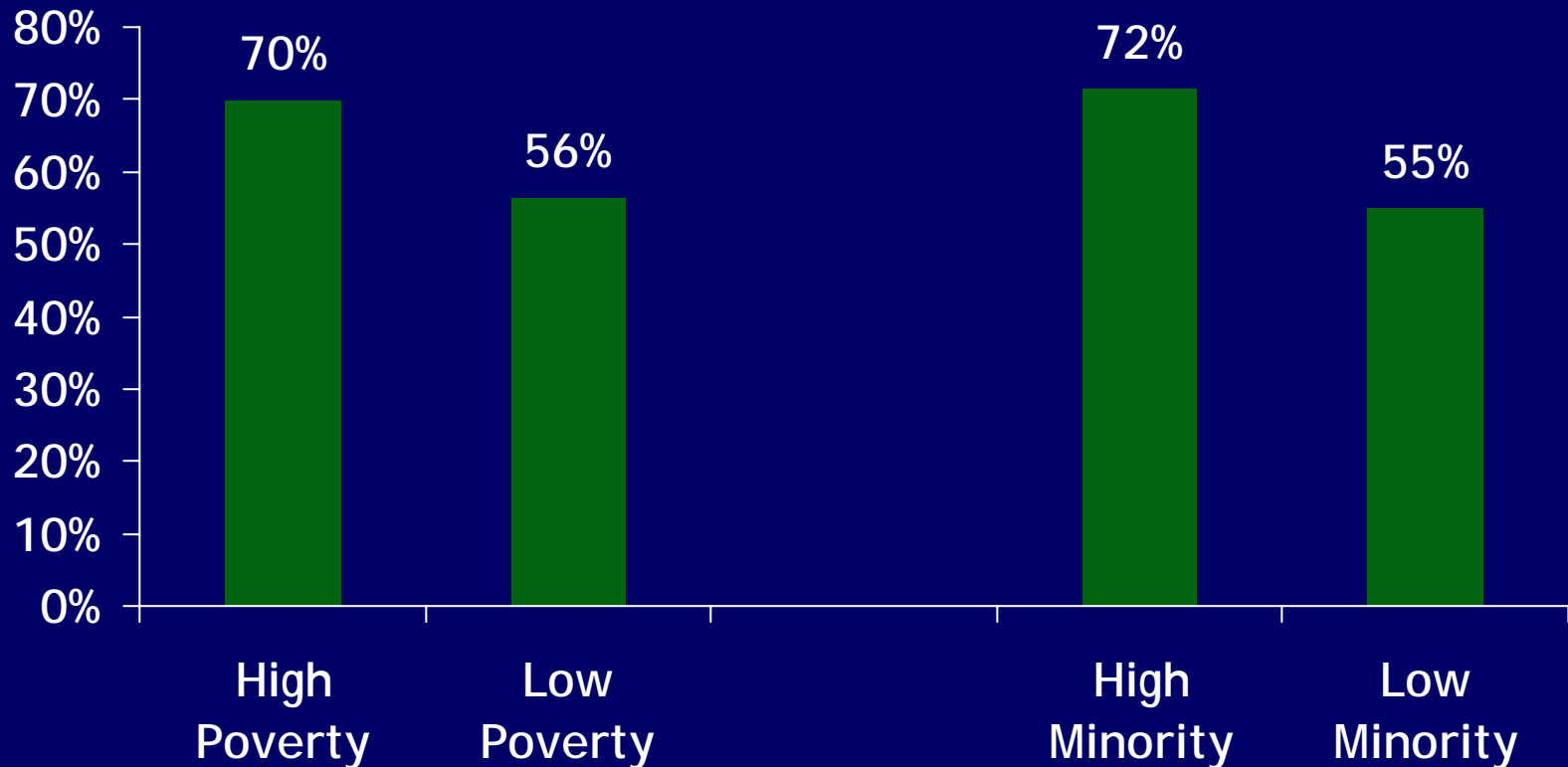
Source: Schools and Staffing Survey 1999-2000, calculations by Richard Ingersoll for the the Education Trust, 2002.

# Math and Science Classes in High Minority High Schools Are More Often Taught by Underqualified Teachers



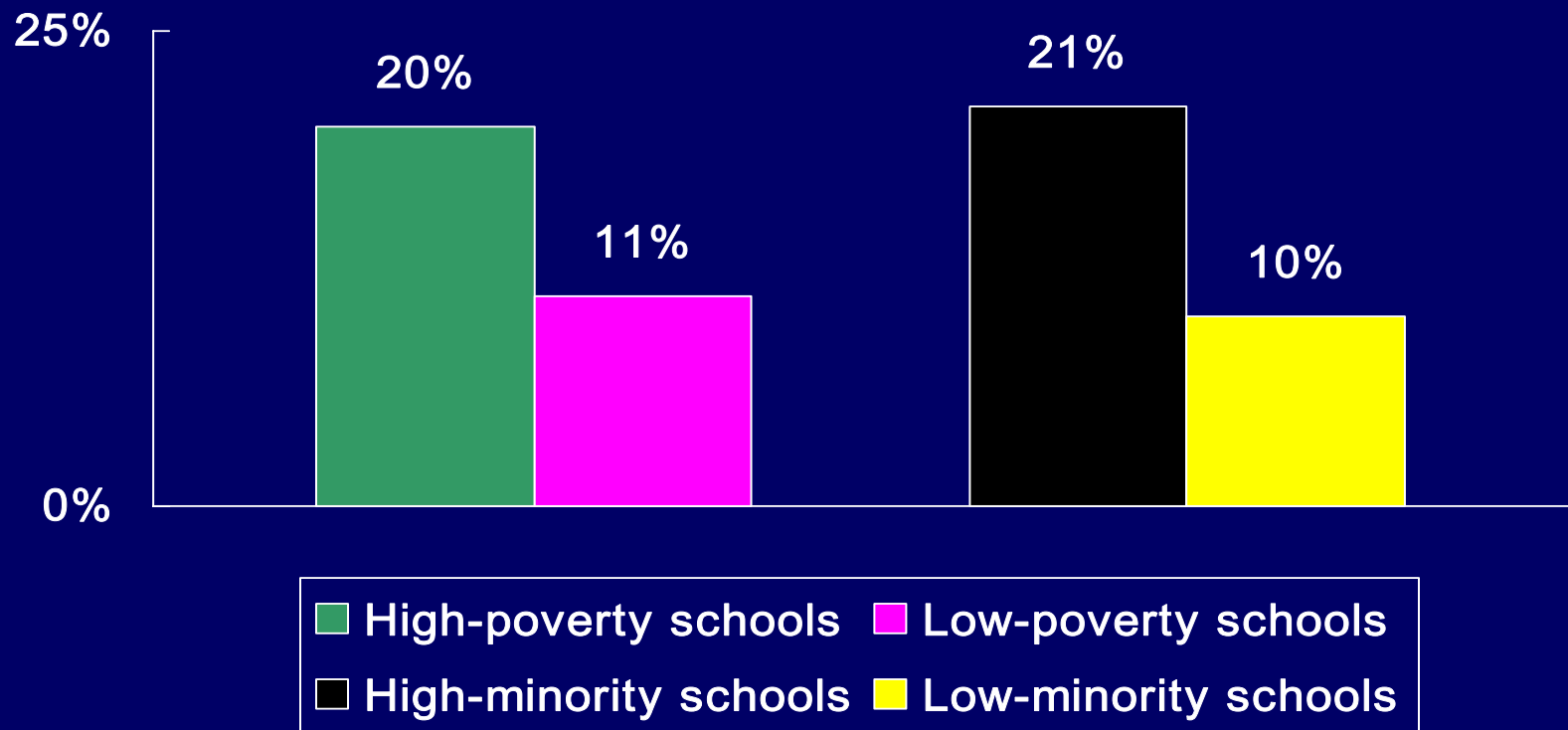
**Source:** Jeannie Oakes. *Multiplying Inequalities: The Effects of Race, Social Class, and Tracking on Opportunities to Learn Mathematics and Science* (Rand: 1990)

# The Problem is Worse Still in Middle Schools – Teachers Without a Major or Minor in Math



Source: Schools and Staffing Survey 1999-2000, calculations by Richard Ingersoll for the the Education Trust, 2002.

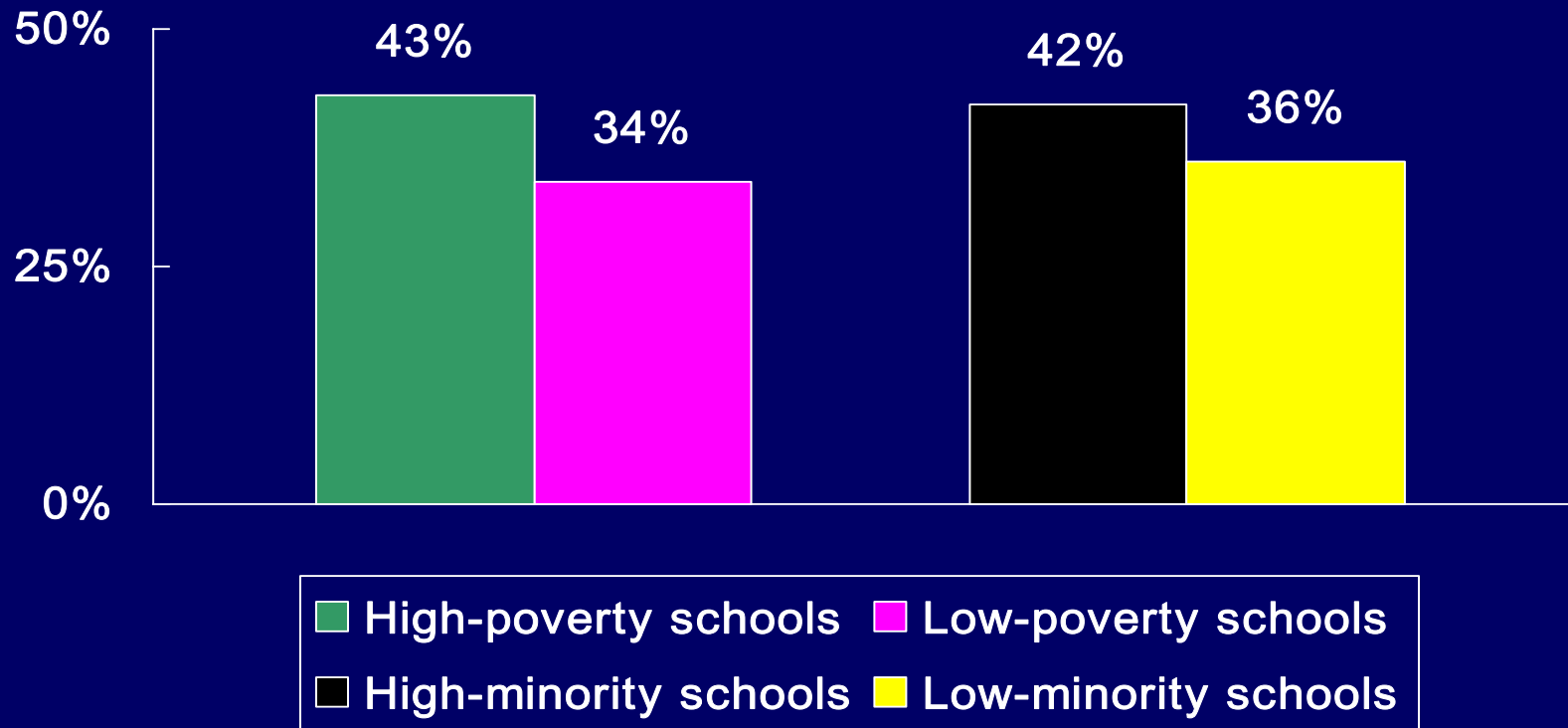
# Poor and Minority Students Get More Inexperienced\* Teachers



\*Teachers with 3 or fewer years of experience. "High" and "low" refer to top and bottom quartiles.

Source: National Center for Education Statistics, "Monitoring Quality: An Indicators Report," December 2000.

# Georgia: Poor and Minority Students Get More Out of Field Teachers



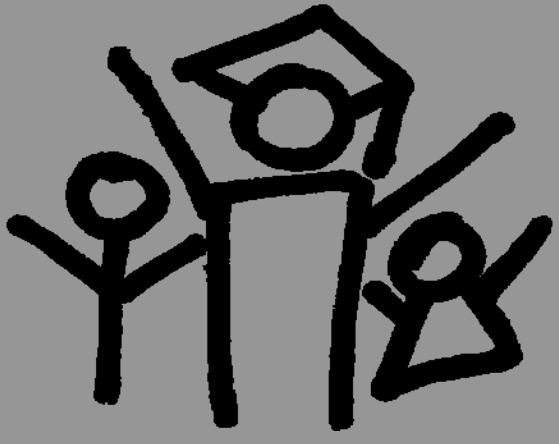
\*Source: Schools and Staffing Survey;  
National Center for Education Statistics, "Monitoring Quality: An Indicators Report," December 2000.

Devastating Impact

If we had the courage and  
creativity to change these  
patterns?

“By our estimates from Texas schools, having an above average teacher for five years running can completely close the average gap between low-income students and others.”

John Kain and Eric Hanushek



# The Education Trust

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