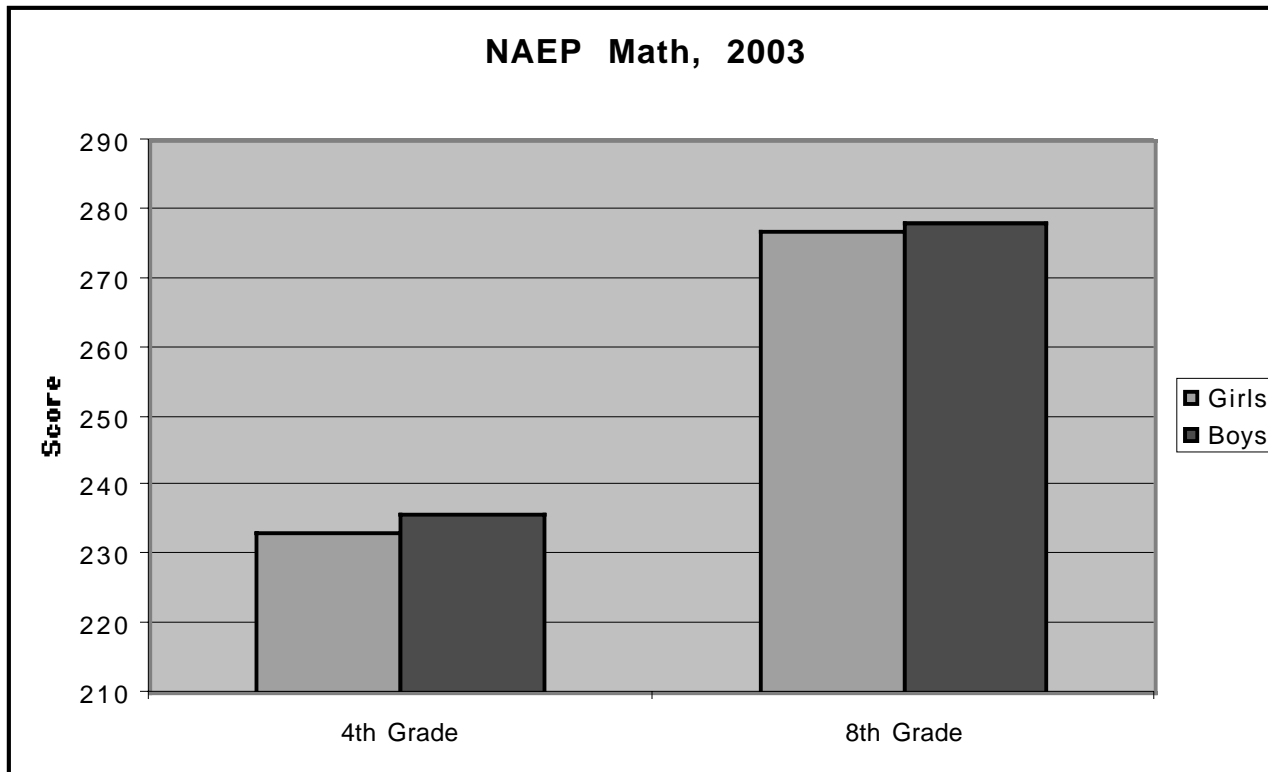


Race, Class, and Gender Gaps in Math and Science Achievement

Presentation by Katherine McClelland
Department of Sociology
Franklin and Marshall College

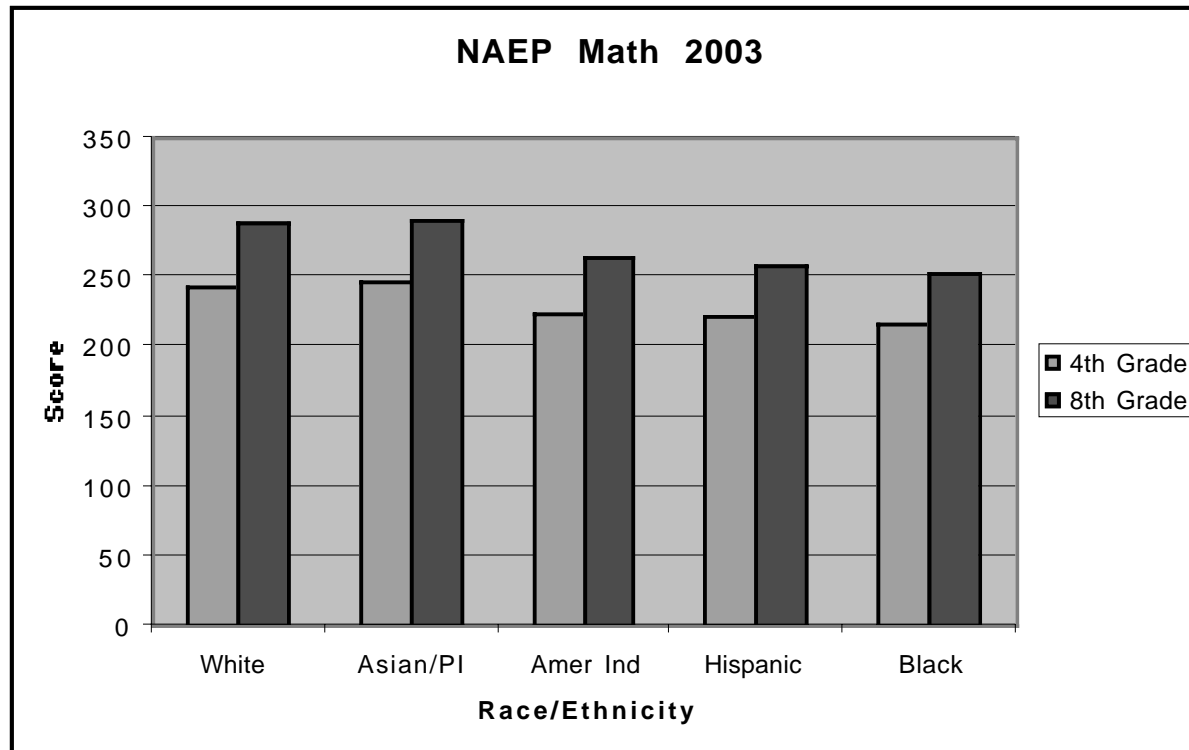
NAEP Math 2003 by Gender



8th Grade
Gap = 1
point

Source: <http://nces.ed.gov/nationsreportcard/mathematics/results2003>

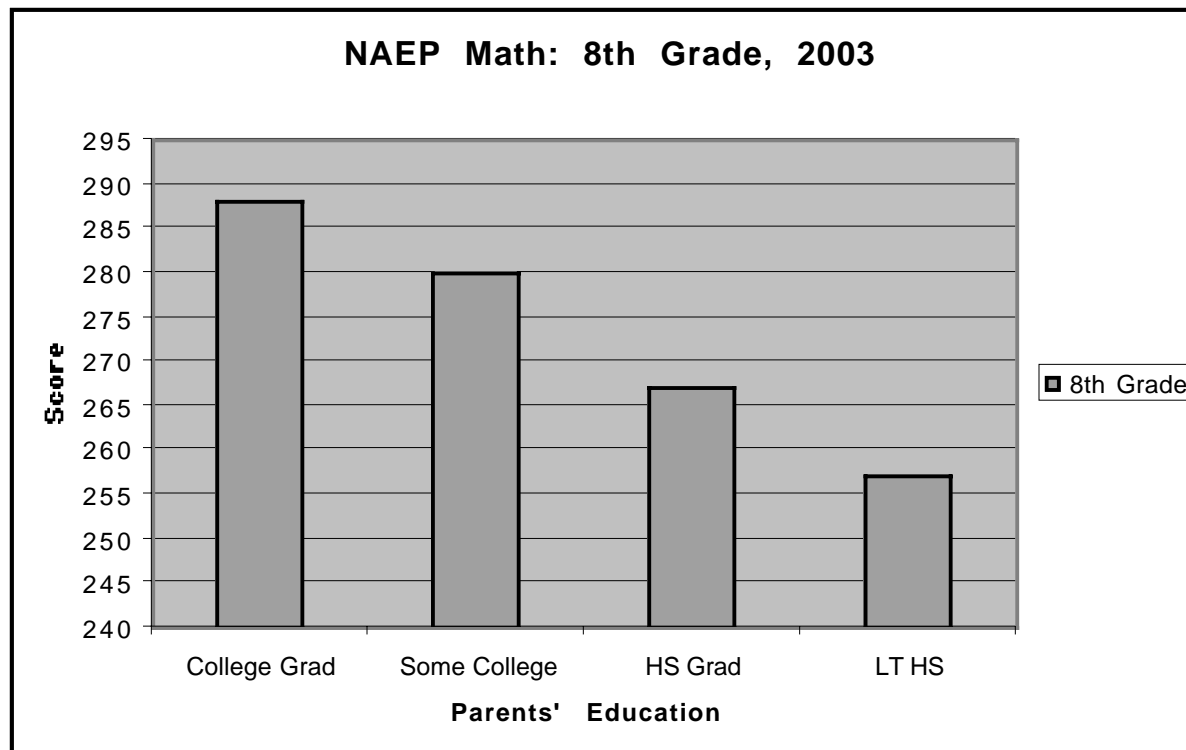
NAEP Math, 2003, by Race/Ethnicity



8th Grade
Gap = 35
Points

Source: <http://nces.ed.gov/nationsreportcard/mathematics/results2003>

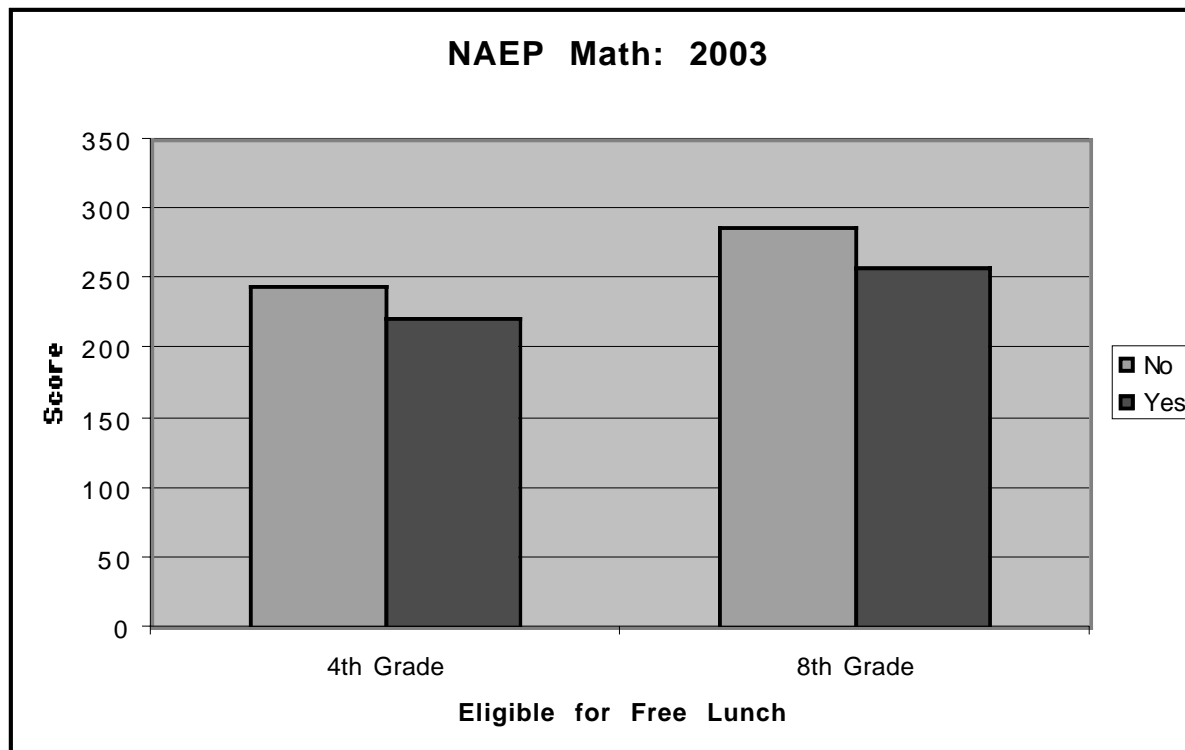
NAEP MATH, 2003 by Parents' Education



8th Grade Gap = 31
Points

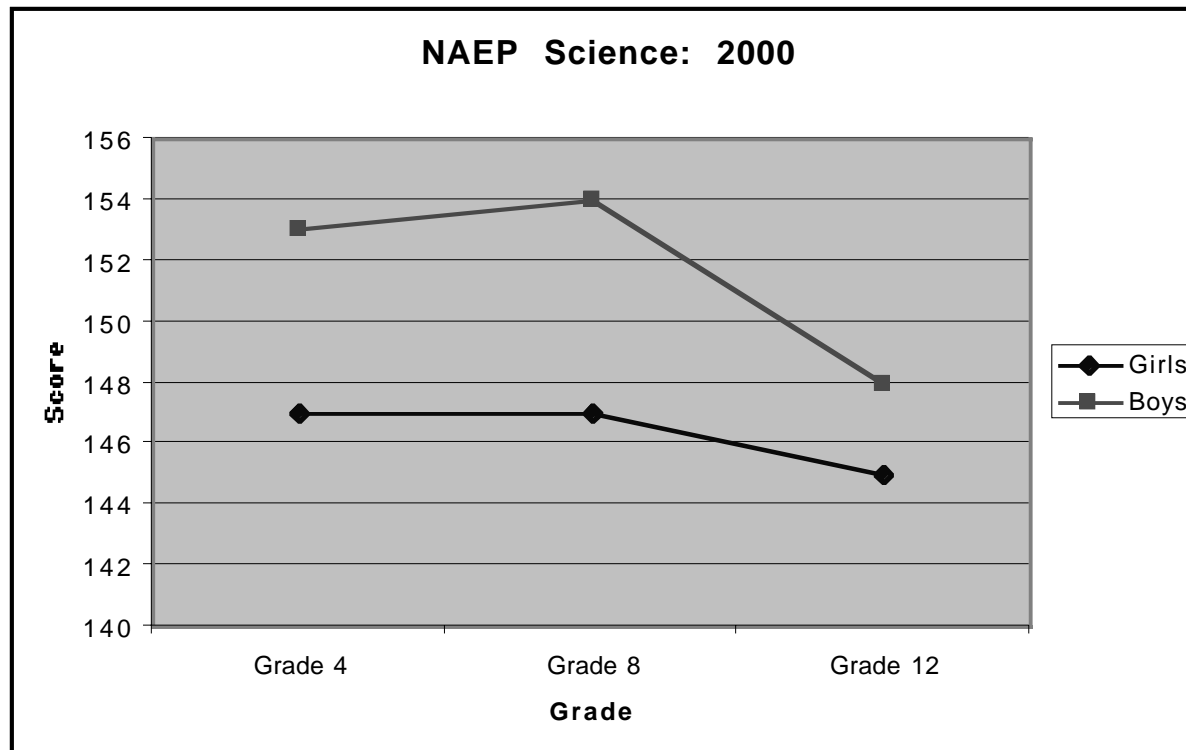
Source: <http://nces.ed.gov/nationsreportcard/mathematics/results2003>

NAEP Math, 2003 by Free Lunch Eligibility



8th Grade Gap =
26 Points

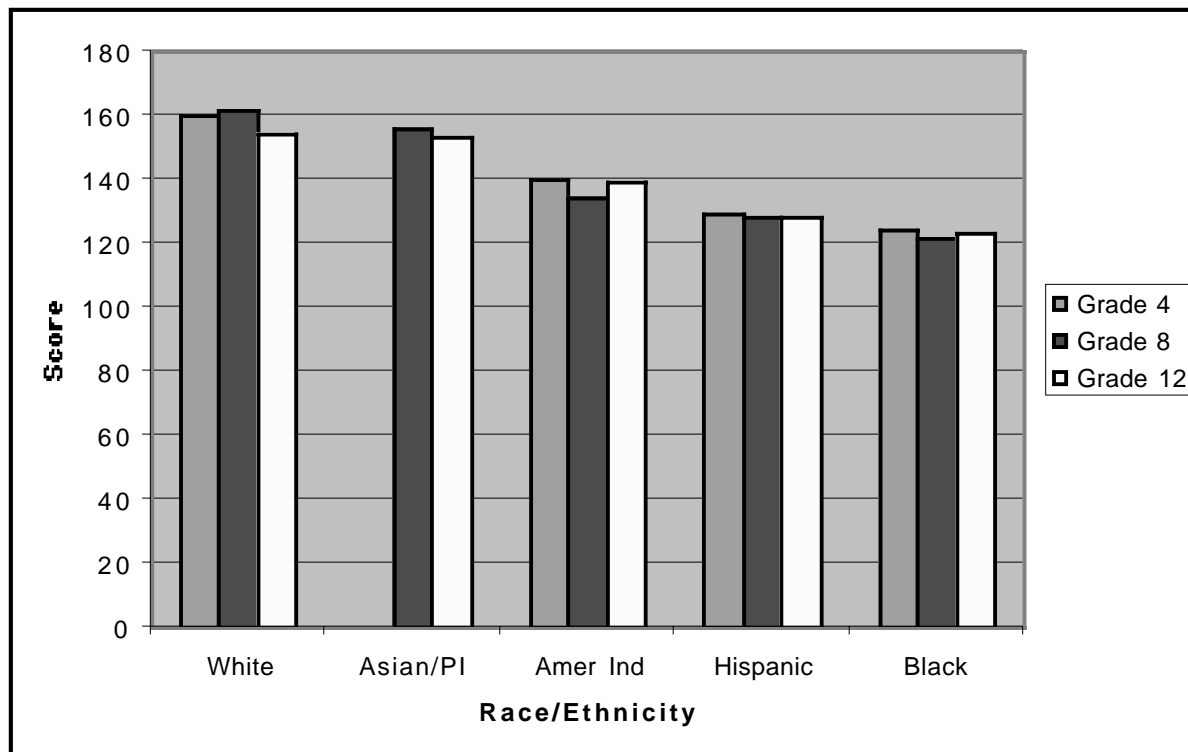
NAEP 2000 Science Score by Gender



8th Grade Gap=7
points;
12th Grade Gap=3
points

Source:<http://nces.ed.gov/nationsreportcard/science/results/natsubgroups.asp>

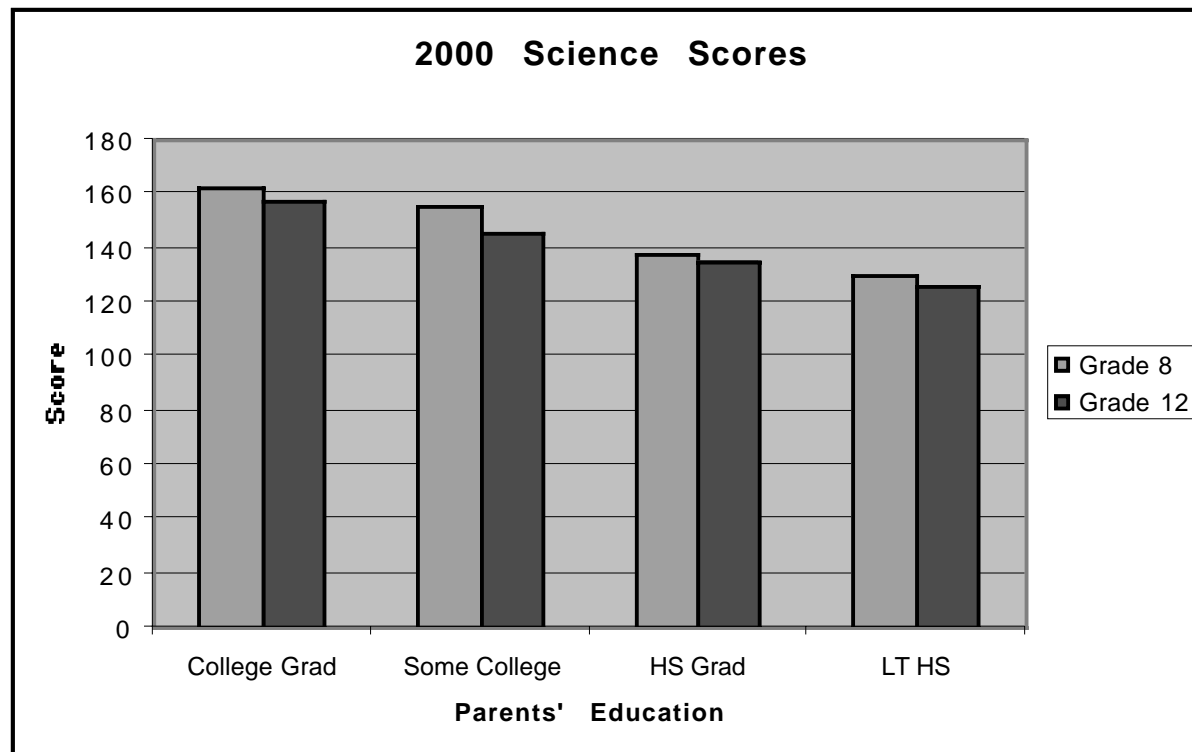
NAEP 2000 Science Score by Race/Ethnicity



8th Grade Gap= 40
points

Source:<http://nces.ed.gov/nationsreportcard/science/results/natsubgroups.asp>

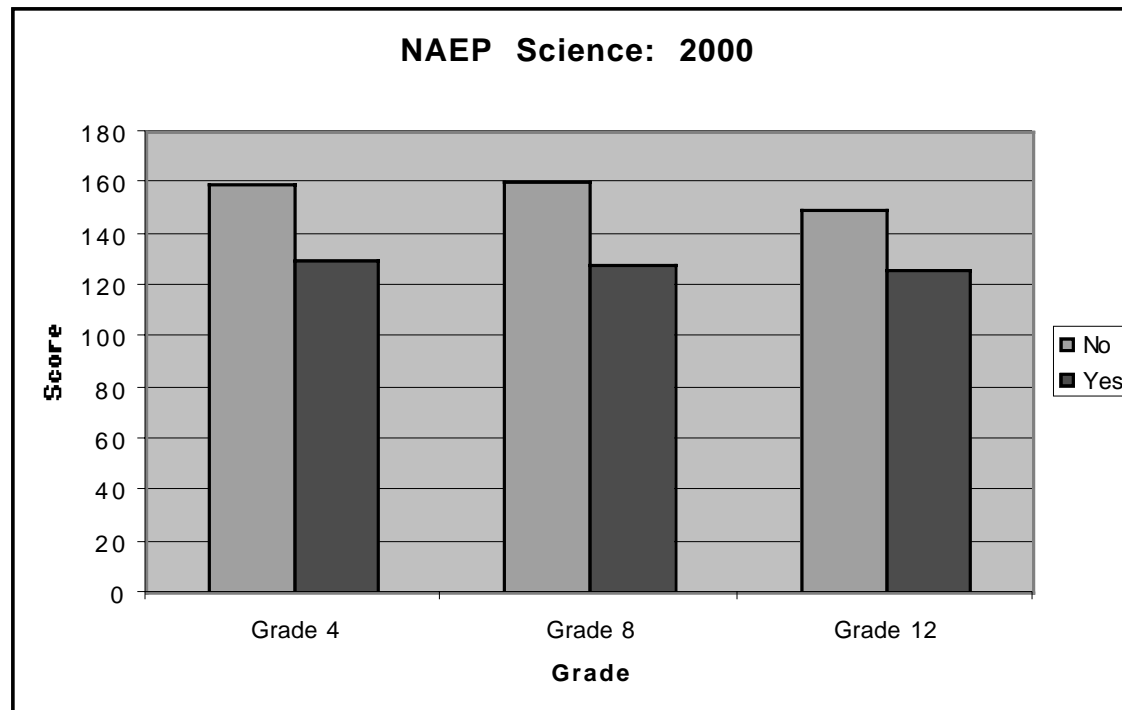
NAEP 2000 Science Scores by Parents' Education



8th Grade
Gap= 32
points

Source:<http://nces.ed.gov/nationsreportcard/science/results/natsubgroups.asp>

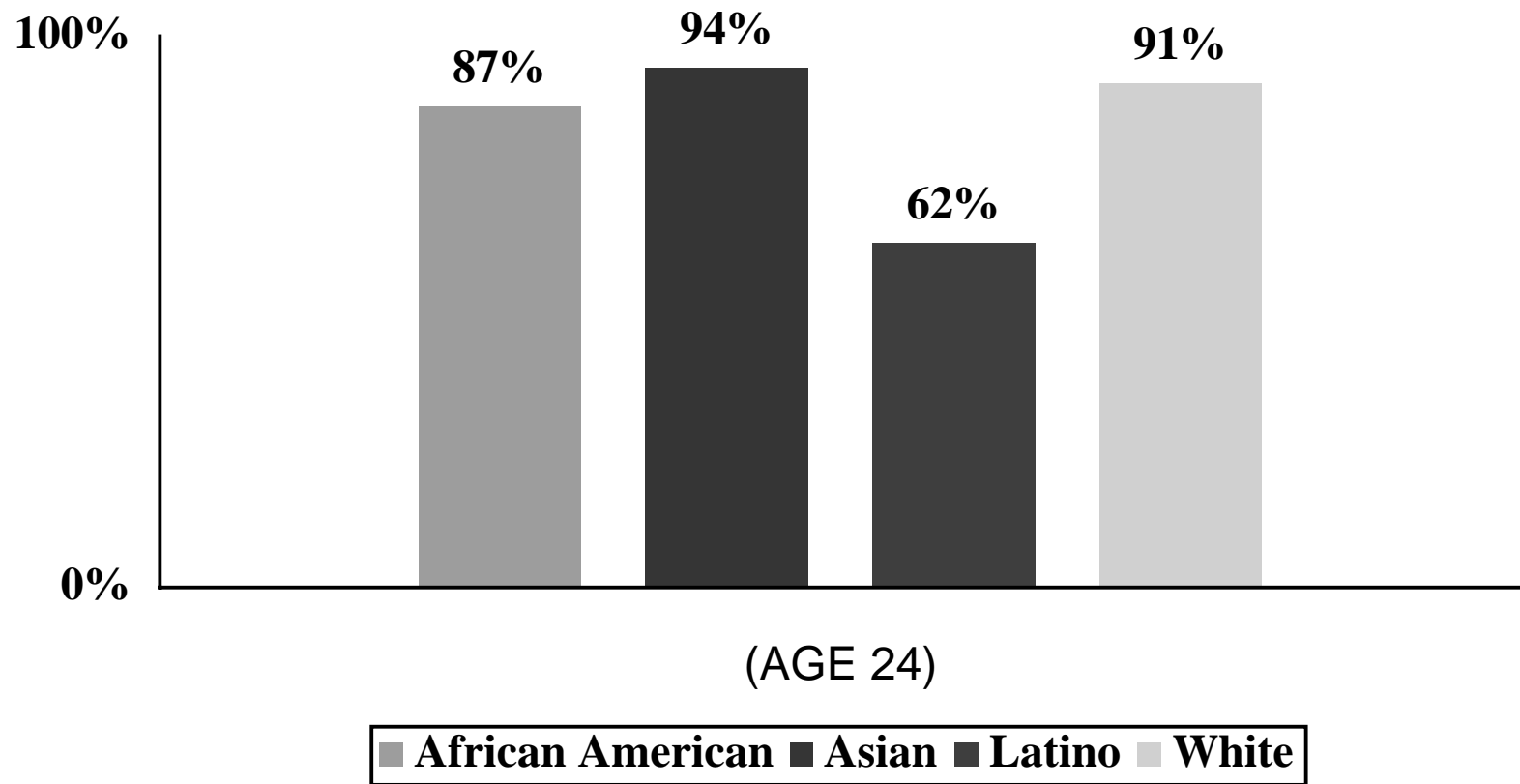
NAEP 2000 Science Scores by Free Lunch Eligibility



8th Grade
Gap= 32
points

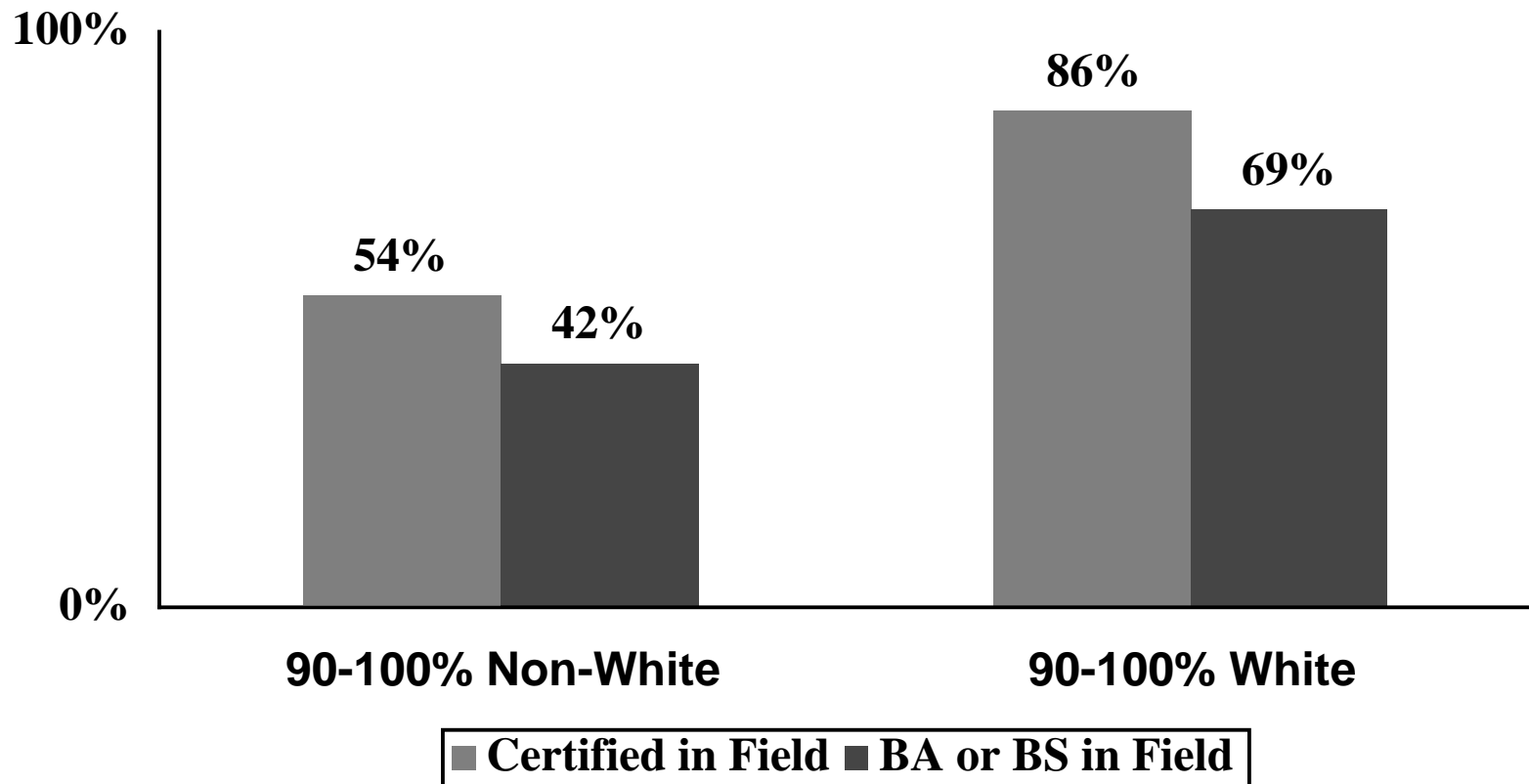
Source: <http://nces.ed.gov/nationsreportcard/science/results/natsubgroups.asp>

Students Graduate From High School At Different Rates, 2000



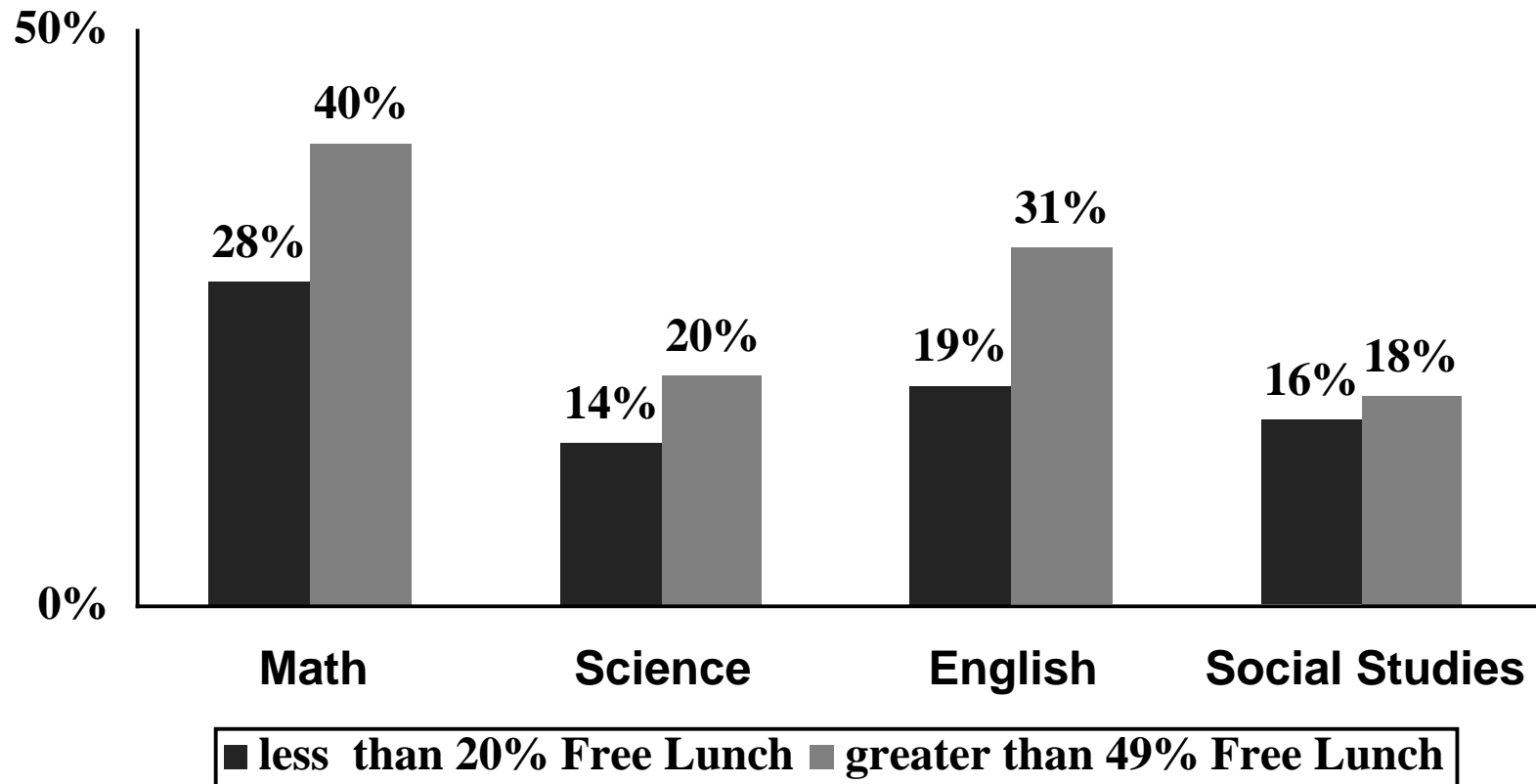
Source: US Bureau of Census, Current Population Reports, Educational Attainment in the United States: March 2000, Detailed Tables No. 2. Taken from Education Trust, Achievement in America, 2001; available at <http://www2.edtrust.org/edtrust>

Math and Science Classes of Mostly Minority Students 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). Taken from Education Trust, *Achievement in America*, 2001; available at <http://www2.edtrust.org/edtrust>

Classes in High Poverty High Schools More Often Taught by Underqualified* 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.

Taken from Education Trust, *Achievement in America*, 2001; available at <http://www2.edtrust.org/edtrust>

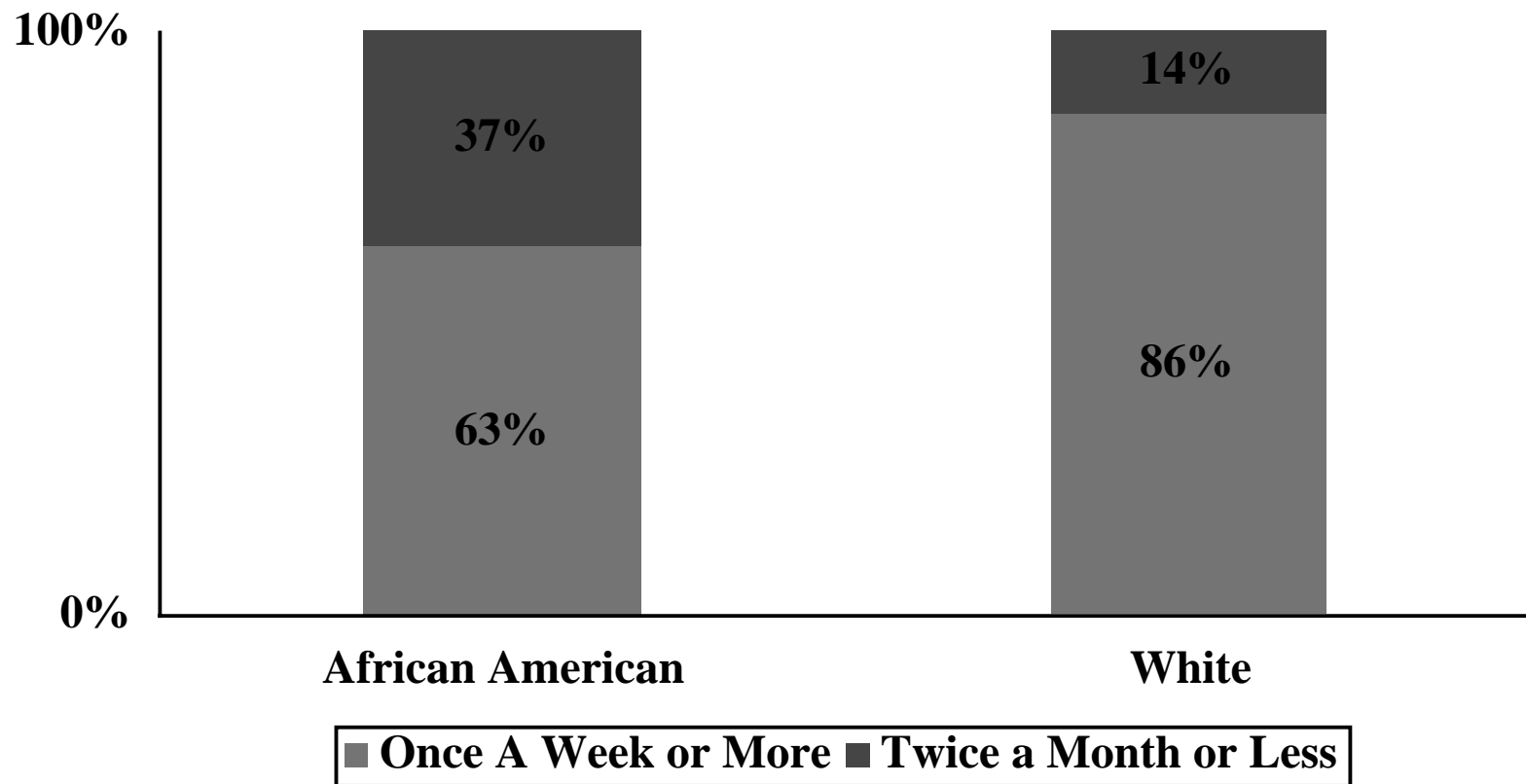
Teachers in High Poverty Schools Spend Less Time Developing Reasoning Skills

**% Teachers Who Spend
a Lot of Time
on Reasoning Skills**

High Poverty Schools	39%
More Affluent Schools	55%

Source: NAEP 1996 Math Data Tables (NCES, US Department of Education). Taken from Education Trust, Achievement in America, 2001; available at <http://www2.edtrust.org/edtrust>

African Americans Are Less Likely to Get Hands on Science



Source: NCES, NAEP Summary Data Tables, 1996. Taken from Education Trust, Achievement in America, 2001; available at <http://www2.edtrust.org/edtrust>

School Funding in PA, 2001

- Per student funding gap, lowest poverty to highest poverty district: \$1519
- Per student funding gap, lowest minority to highest minority district:\$756
- In a classroom of 25 students, this would translate into a difference of \$37,975
- In an elementary school of 400 students, this would translate into a difference of \$607,600

What Creates this gap?

- Reliance on local (primarily property) taxes as a main source of public school funding
- In PA, the state pays on average only 39.8% of combined state and local school revenues - that's 47th lowest in the nation. (2001)
- PA is one of only 12 states that provides NO additional state funding for high poverty districts

But that's not the whole story.....

Mount Royal School Baltimore, MD

- 77% Poverty
- 99% African American
- Highest 5th grade math results in the state
(over 93% scoring at satisfactory level)

Source: Maryland Department of Education Website.1999 Scores. From Education Trust, Achievement in America, 2001; available at <http://www2.edtrust.org/edtrust>

Kentucky

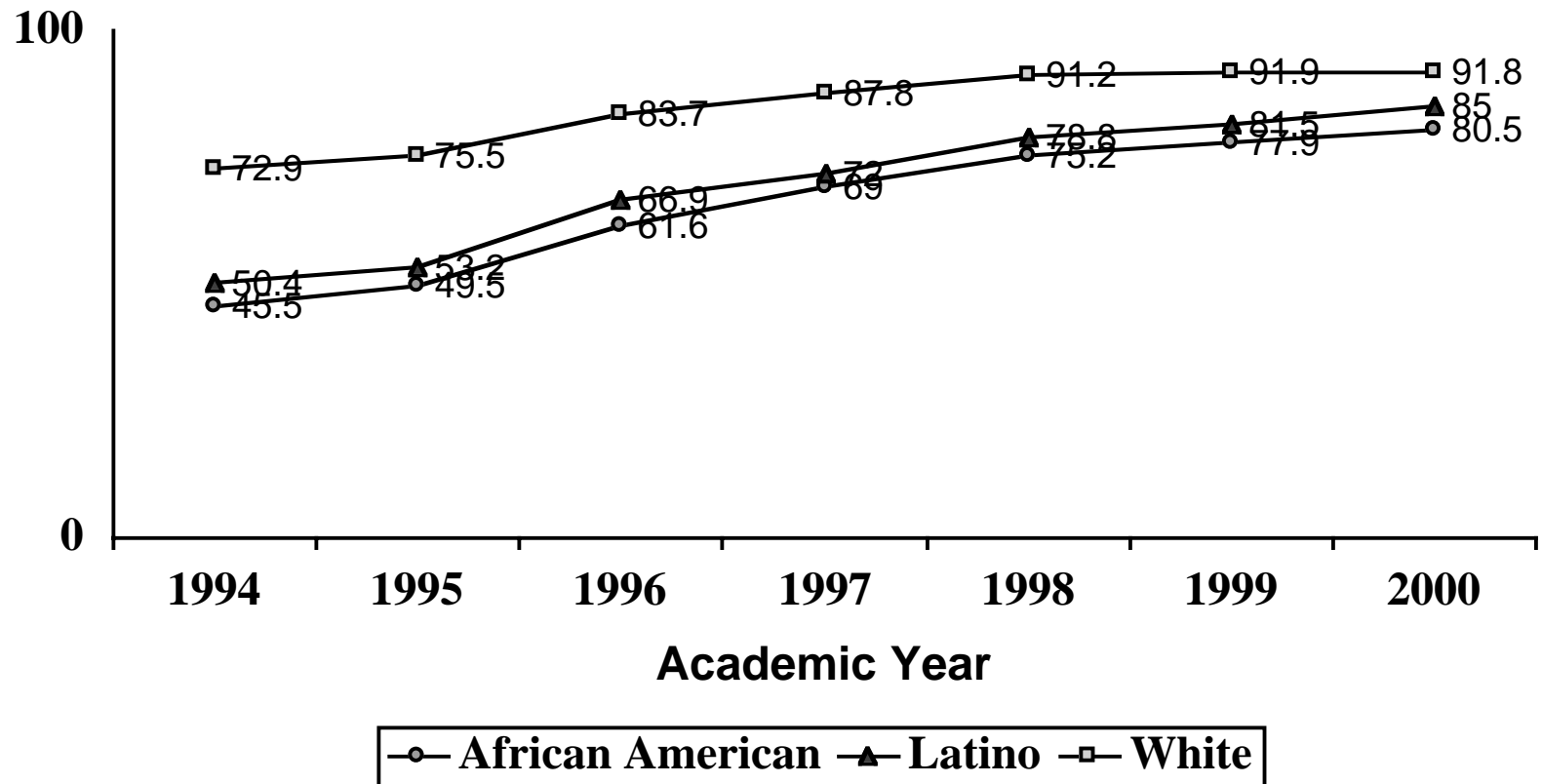
Elementary Top 20 Schools

- **Mathematics: Top 20 Includes 8 High Poverty* Schools**
- **Writing: Top 20 Includes 13 High Poverty* Schools**

*High Poverty is defined as greater than 40% free and reduced price lunch.

Source: Susan Perkins Weston, KY Association of School Councils, 1999 KY Elementary School Performance and Poverty Report.
Taken from Education Trust, Achievement in America, 2001; available at <http://www2.edtrust.org/edtrust>

All Groups Gain in El Paso: El Paso TAAS Pass Rates Math Grades 3, 8 and 10



Source: Texas Education Agency-Academic Excellence Indicator System Report 1994 through 1999. From the El Paso Collaborative for Academic Excellence. Taken from Education Trust, Achievement in America, 2001; available at <http://www2.edtrust.org/edtrust>

So how can we reconcile these
findings?

Look into the classroom.....

Theories Explaining Class-Based Differences

- Teacher expectations
- Parental values and involvement
- Different learning styles
- Culture of Poverty
- Cultural and Social Capital (Bourdieu)

Theories Explaining Race and Ethnic Differences

- Parental Values and Expectations
- Teacher Expectations
- Different Learning Styles
- Primary and Secondary Cultural Differences

And perhaps one more:

- TRUST