

Program for International Student Assessment (PISA) 2006

Prepared by the Education Trust
December 2007



PISA Performance

U.S.A. Ranks Near Bottom, Has Fallen Since 2000

Subject	2000 Rank (out of 26)	2003 Rank (out of 26)	2006 Rank (out of 26)
Mathematics	17th	22nd	22nd
Science	13th	Tied for 17th	19th

Rankings are for the 26 OECD countries participating in PISA in 2000, 2003, and 2006.



There are countries that have improved their ranking since 2000 in math

Country	2000 Rank (out of 26)	2006 Rank (out of 26)
U.S.A.	17th	22nd
Luxembourg	25th	Tied for 19th
Poland	21st	17th
Germany	18th	13th
Czech Republic	16th	10th

Rankings are for the 26 OECD countries participating in PISA in 2000, 2003, and 2006.



There are also countries that have improved their ranking since 2000 in science

Country	2000 Rank (out of 26)	2006 Rank (out of 26)
U.S.A.	13th	19th
Belgium	Tied for 14th	11th
Switzerland	Tied for 14th	9th
Germany	19th	7th

Rankings are for the 26 OECD countries participating in PISA in 2000, 2003, and 2006.



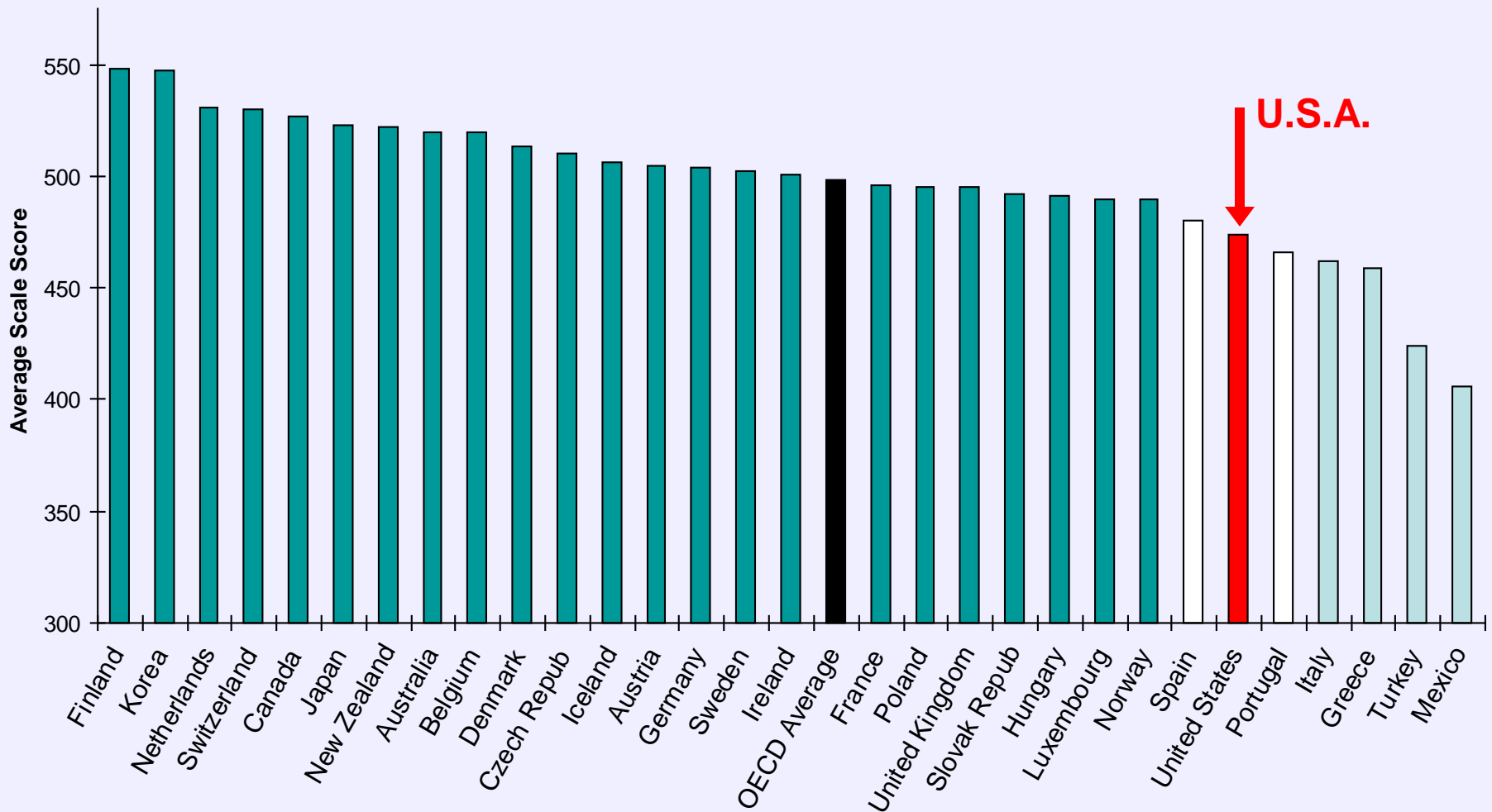
Mathematics

Program for International Student
Assessment (PISA)



PISA 2006 Mathematics

U.S.A. Ranked 25th out of 30 OECD Countries



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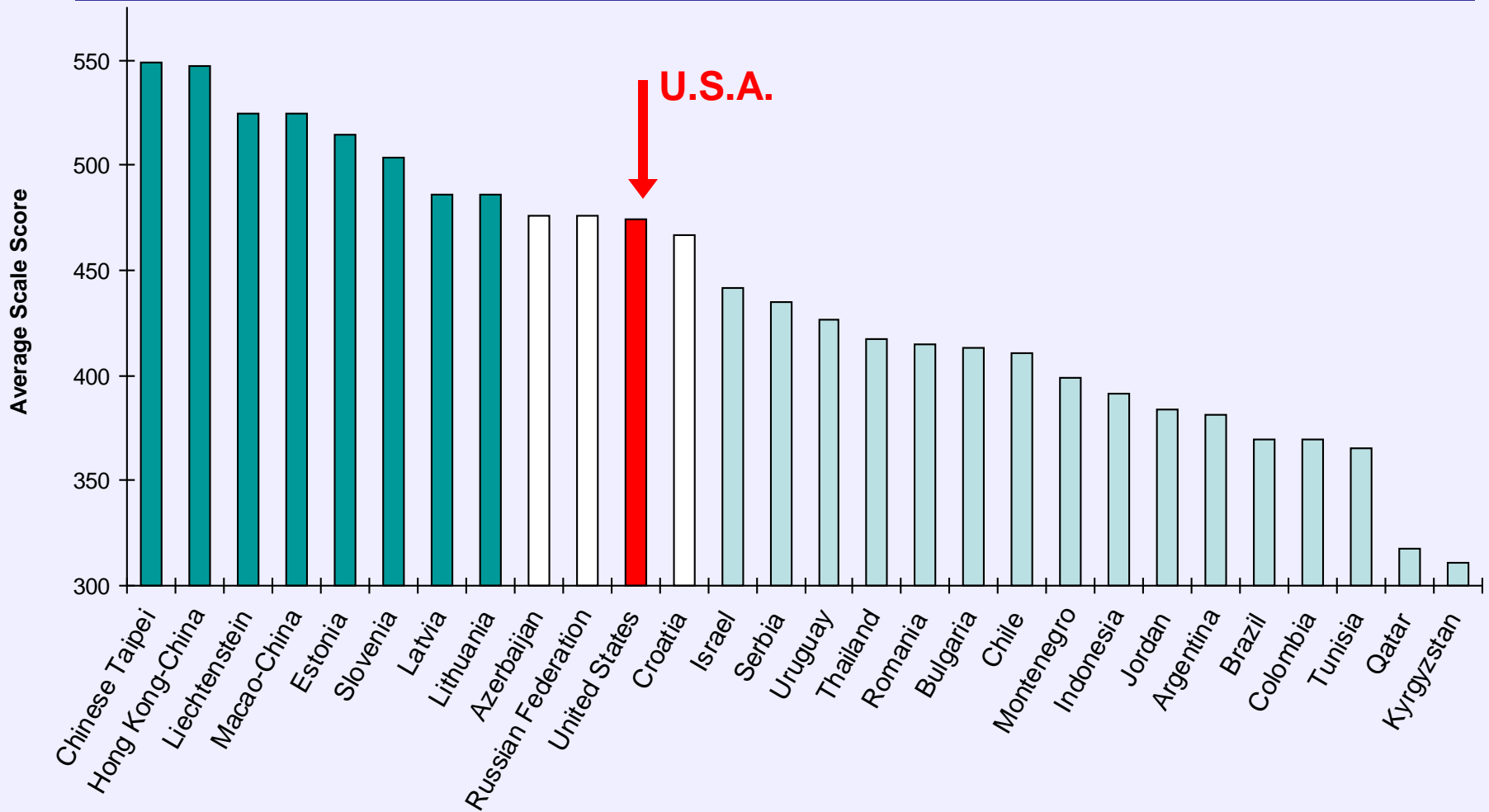
■ Higher than U.S. average
 ■ Not measurably different from U.S. average
 ■ Lower than U.S. average

Source: NCES, PISA 2006 Results, <http://nces.ed.gov/surveys/pisa/>



PISA 2006 Mathematics

Compared with the 27 Participating Non-OECD Countries, U.S.A. Would Rank 11th



Higher than U.S. average
 Not measurably different from U.S. average
 Lower than U.S. average



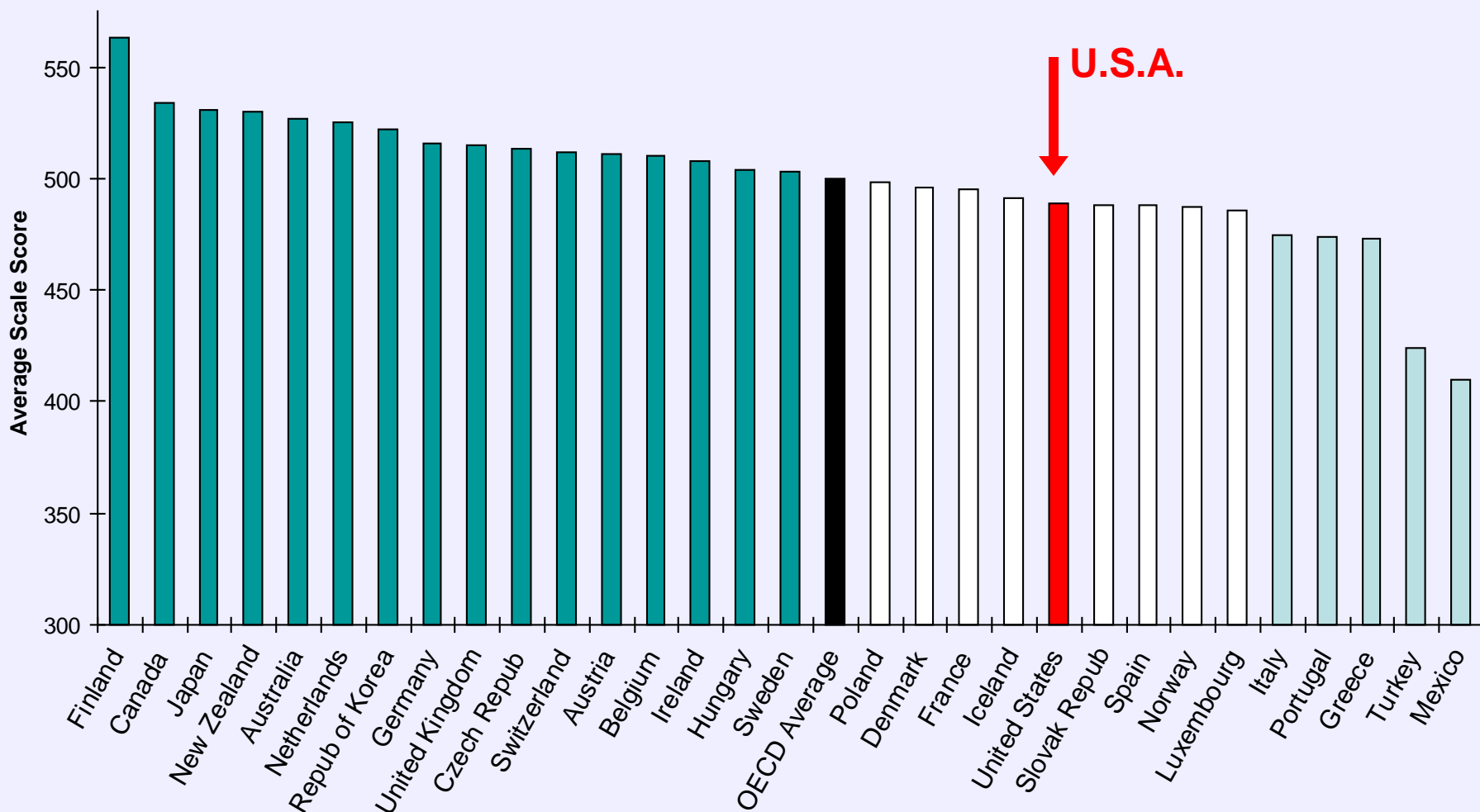
Science Literacy

Program for International Student
Assessment (PISA)



PISA 2006 Science

Of 30 OECD Countries, U.S.A. Ranked 21st



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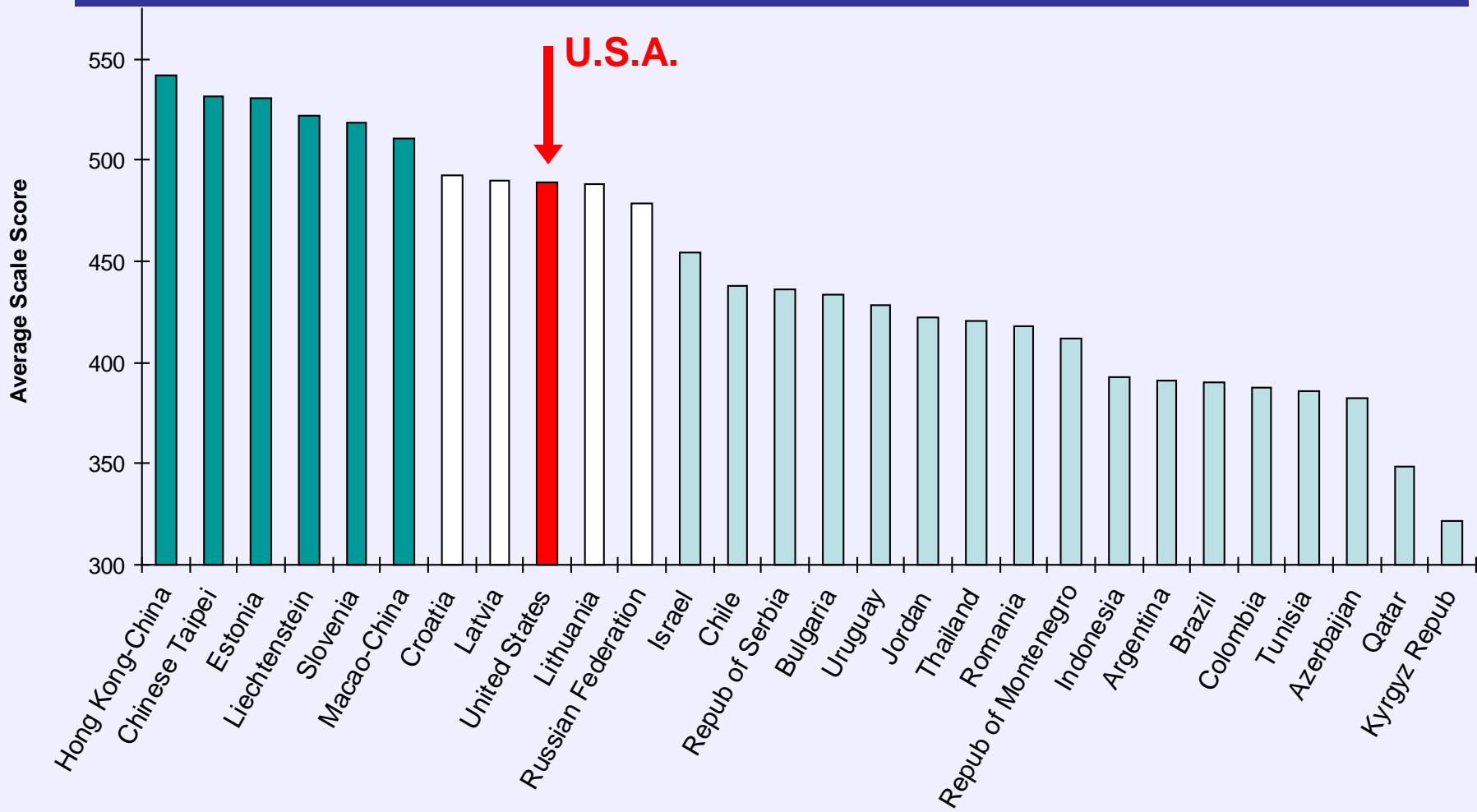
■ Higher than U.S. average
 ■ Not measurably different from U.S. average
 ■ Lower than U.S. average

Source: NCES, PISA 2006 Results, <http://nces.ed.gov/surveys/pisa/>



PISA 2006 Science

Compared with the 27 Participating Non-OECD Countries, U.S.A. Would Rank 9th



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■ Higher than U.S. average
 Not measurably different from U.S. average
 ■ Lower than U.S. average

Source: NCES, PISA 2006 Results, <http://nces.ed.gov/surveys/pisa/>



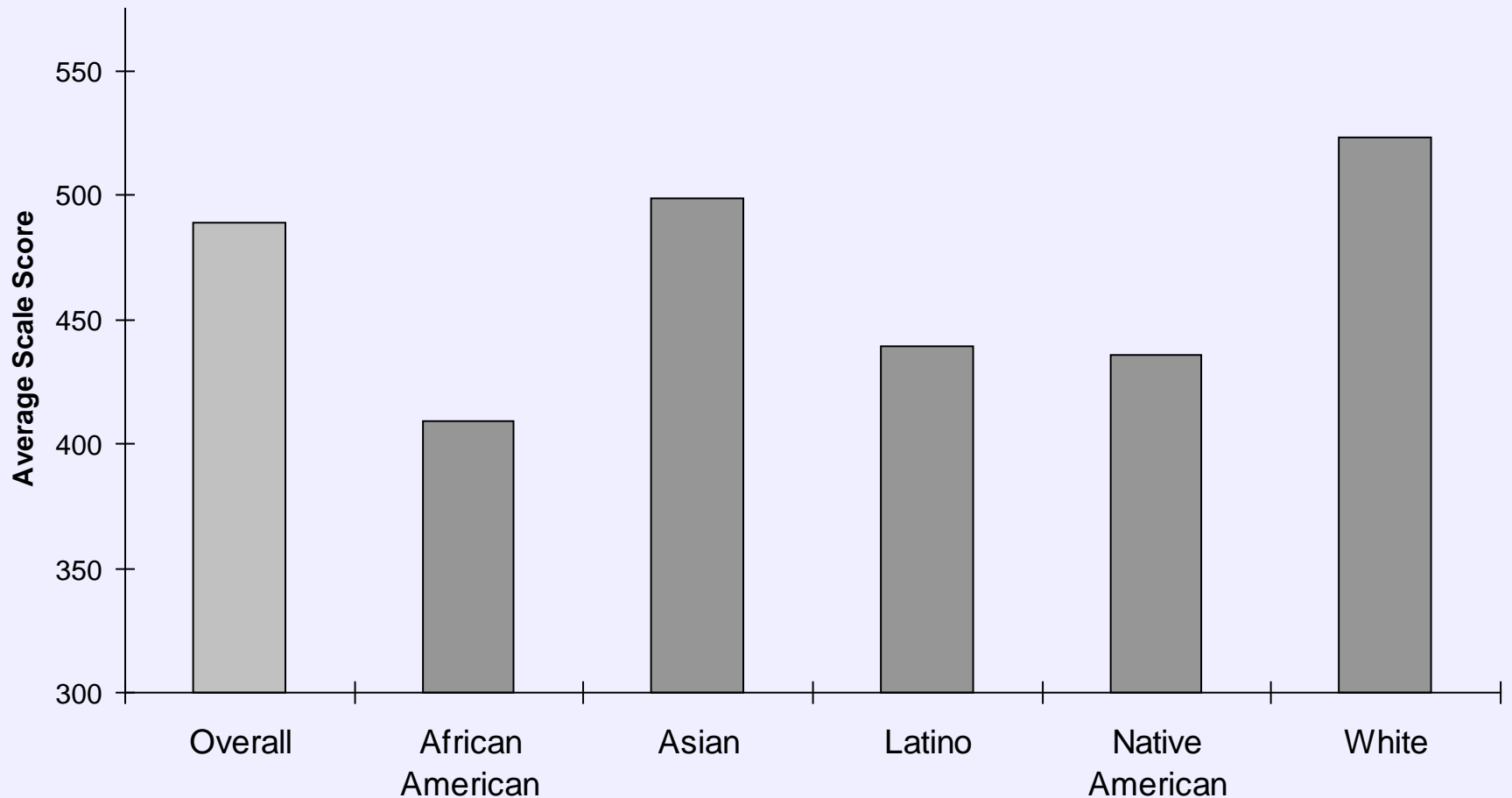
Countries whose 15-year-old students' average science literacy score was not measurably different from the U.S.A. average?

- Croatia
- Latvia
- Lithuania
- Spain
- Norway
- Luxembourg
- Poland
- Denmark
- France
- Iceland
- Slovak Republic
- Russian Federation



PISA 2006 Science

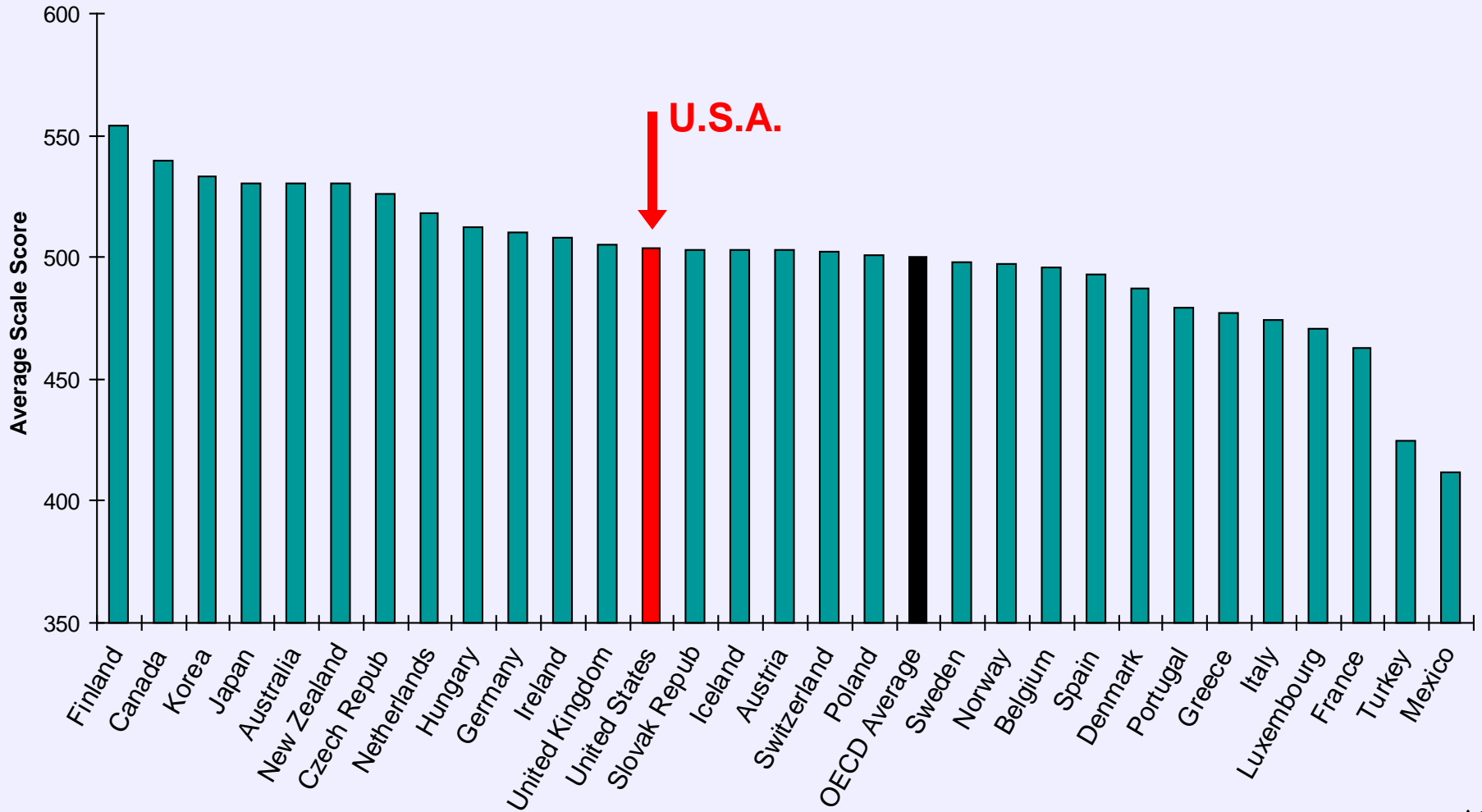
Large Achievement Gaps in the U.S.A.



How does the United States
compare on the PISA science
content areas?



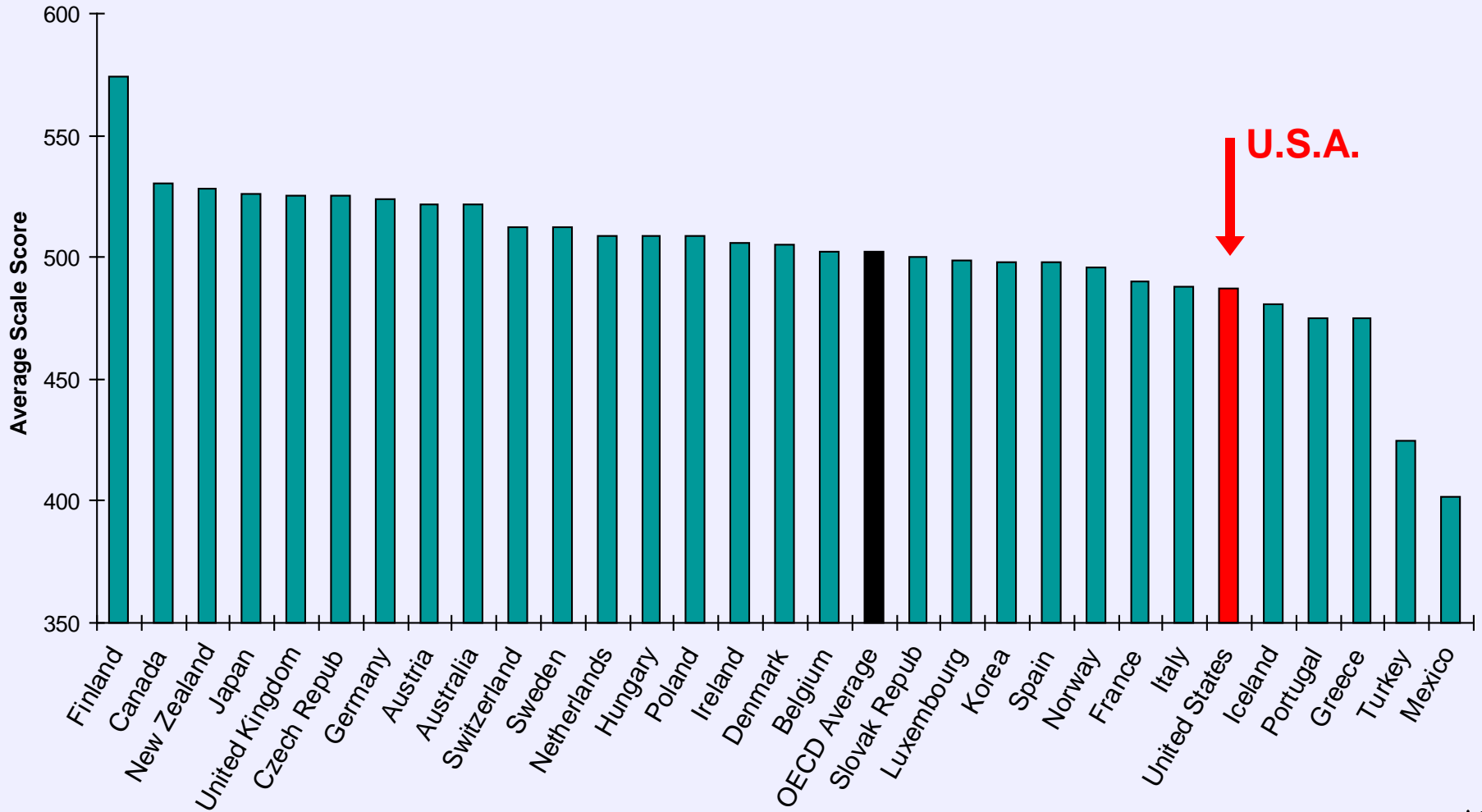
Of 30 OECD countries, U.S.A. ranked 13th in performance on the “earth and space systems” scale
PISA 2006 Science



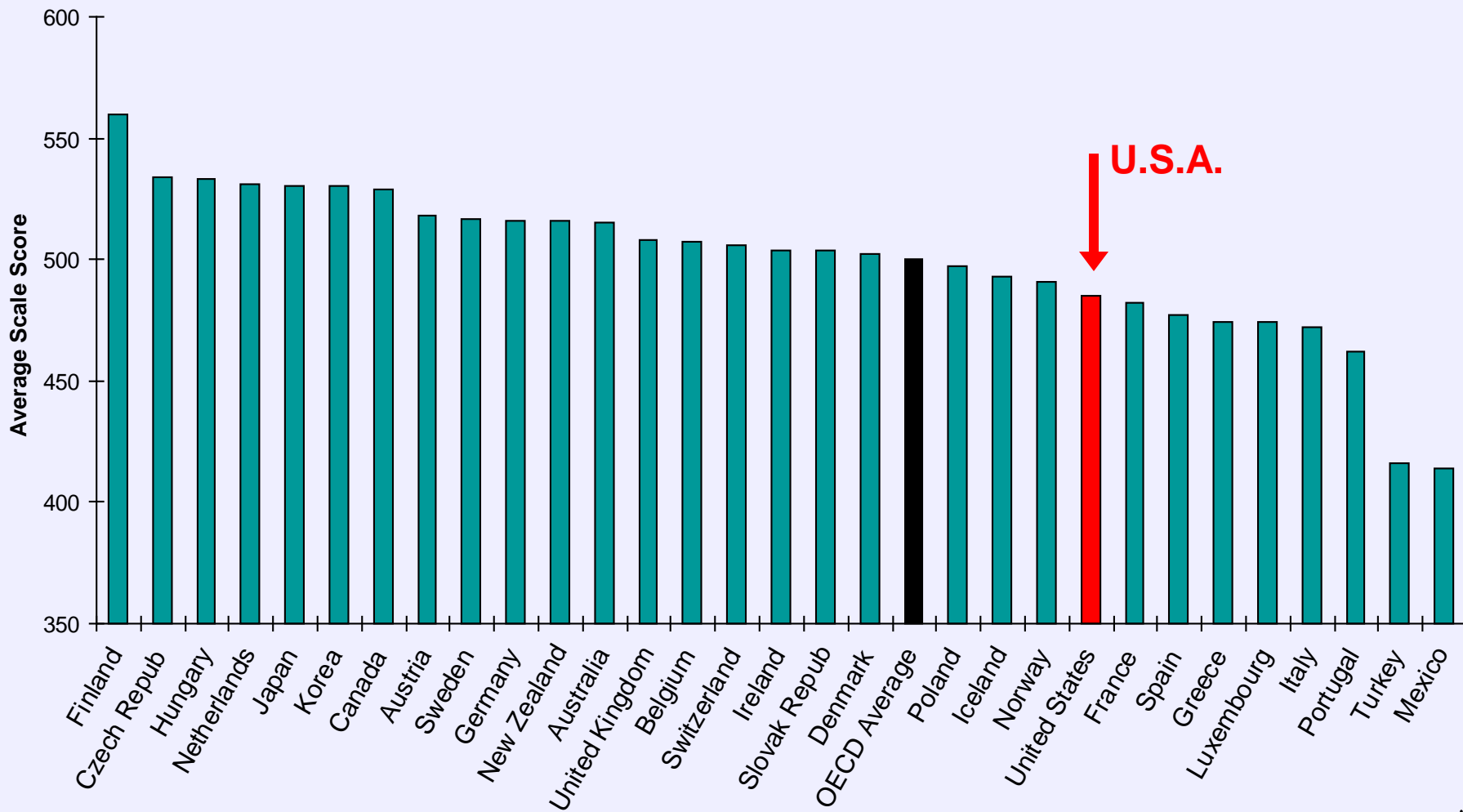
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Of 30 OECD countries, U.S.A. ranked 25th in performance
on the “living systems” scale
PISA 2006 Science



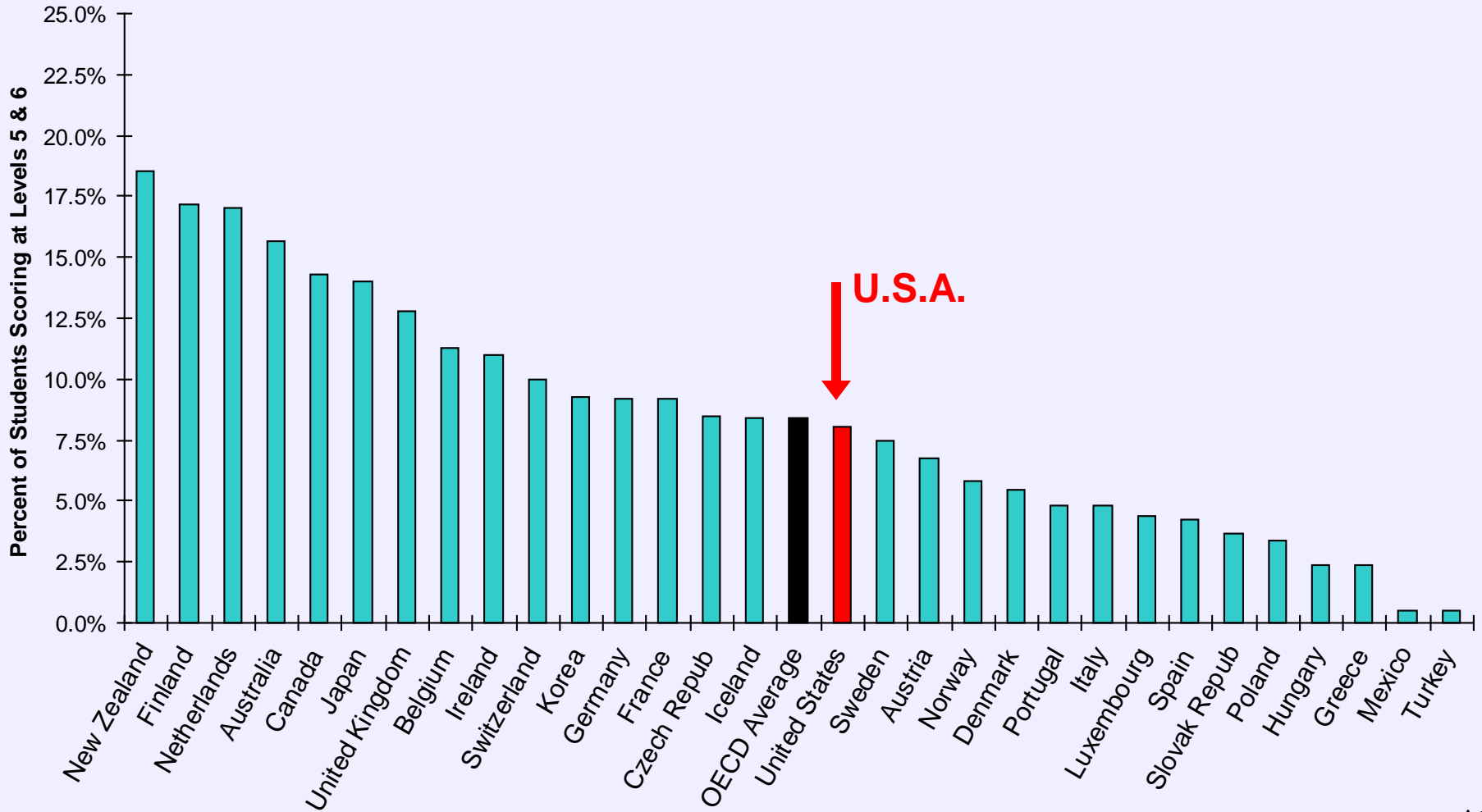
Of 30 OECD countries, U.S.A. ranked 22nd in performance
on the “physical systems” scale
PISA 2006 Science



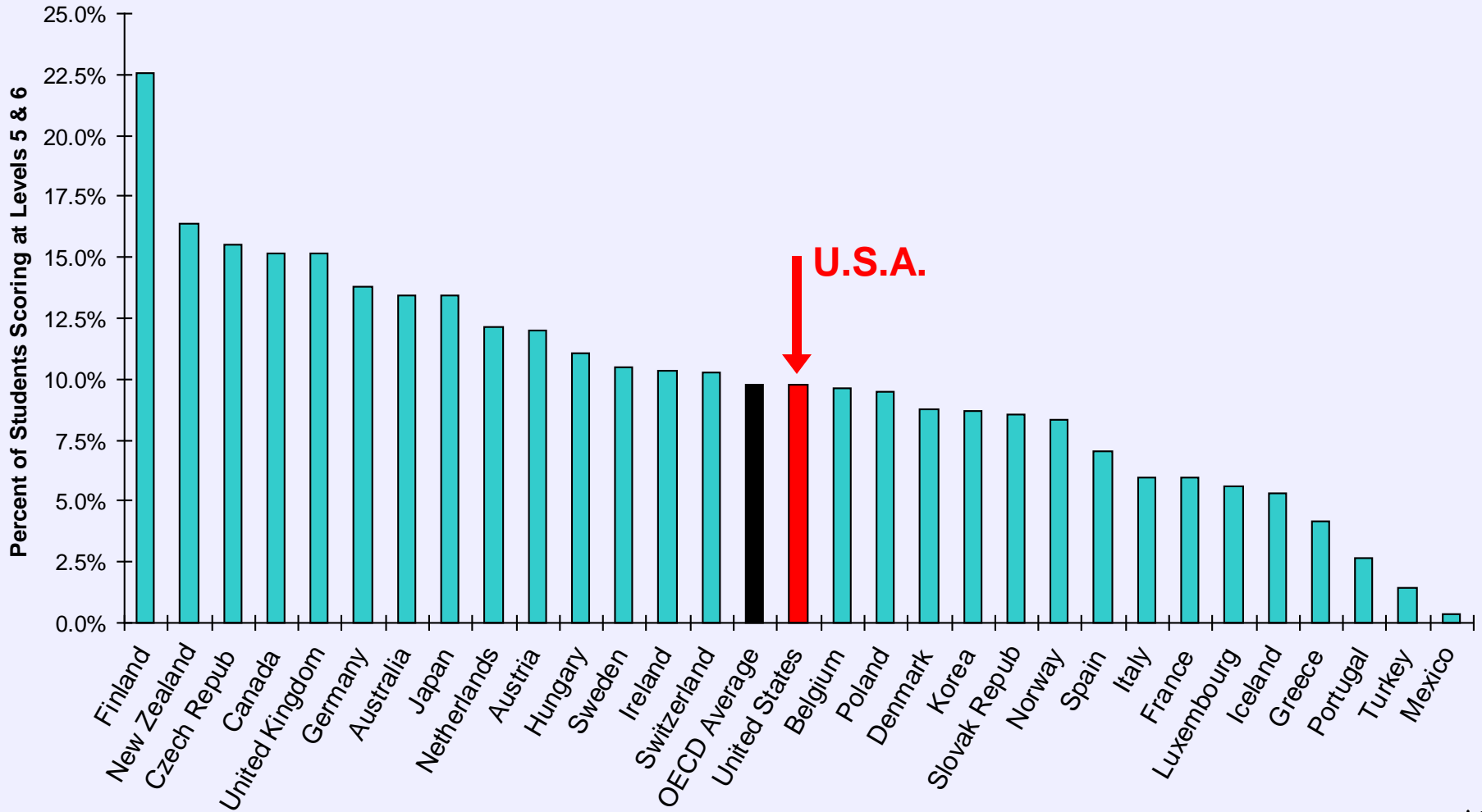
How does the United States compare on PISA science higher order thinking competency?



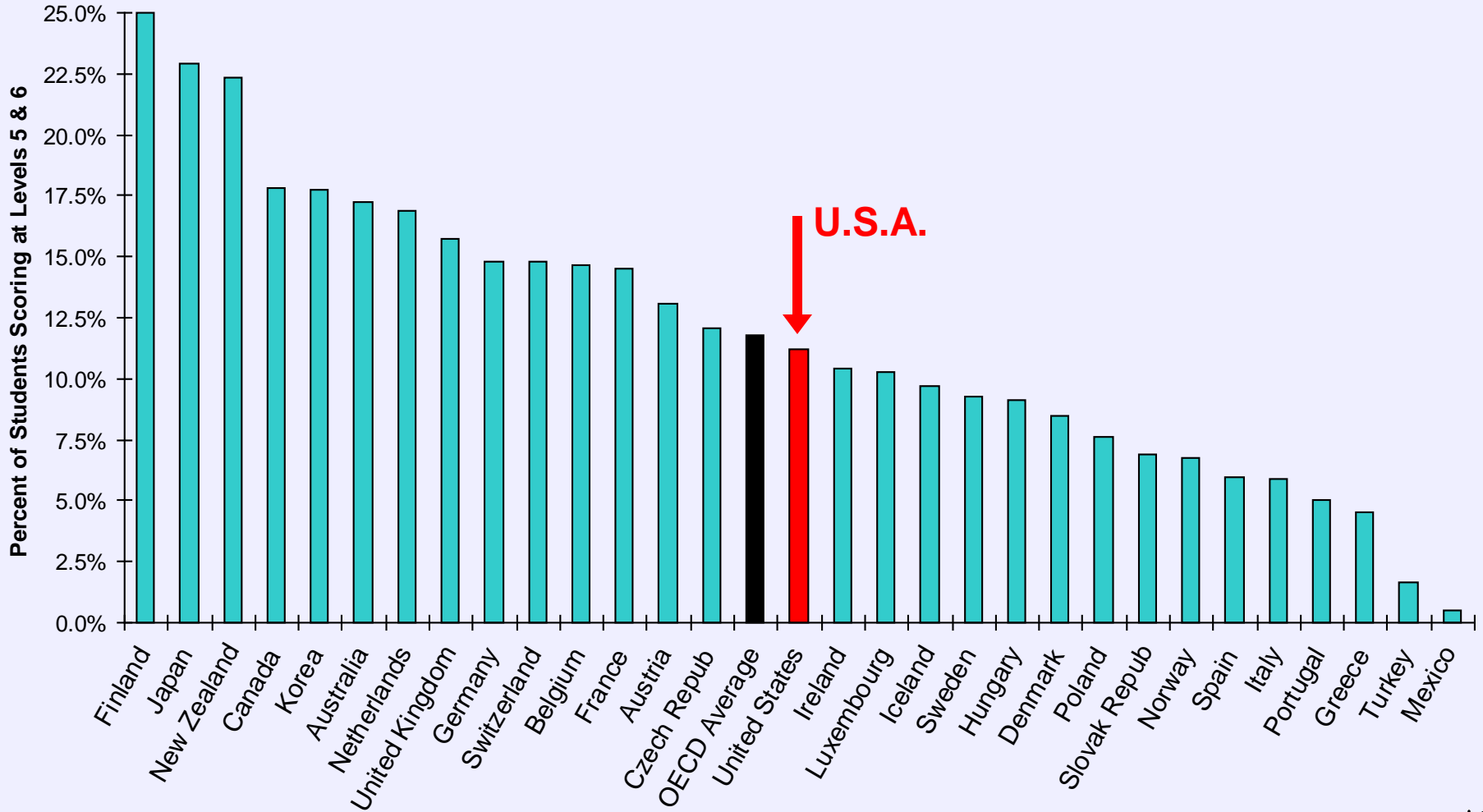
Of 30 OECD countries, U.S.A. ranked 16th in the percentage of students reaching the highest two levels for “identifying scientific issues”
PISA 2006 Science



Of 30 OECD countries, U.S.A. ranked 15th in the percentage of students reaching the highest two levels for “explaining phenomena scientifically”
PISA 2006 Science



Of 30 OECD countries, U.S.A. ranked 15th in the percentage of students reaching the highest two levels for “using scientific evidence”
PISA 2006 Science



For the United States to continue
to compete internationally, we
need to put aside our pride



This means learning from
other countries



It also means recognizing
common myths for what they are:

Excuses



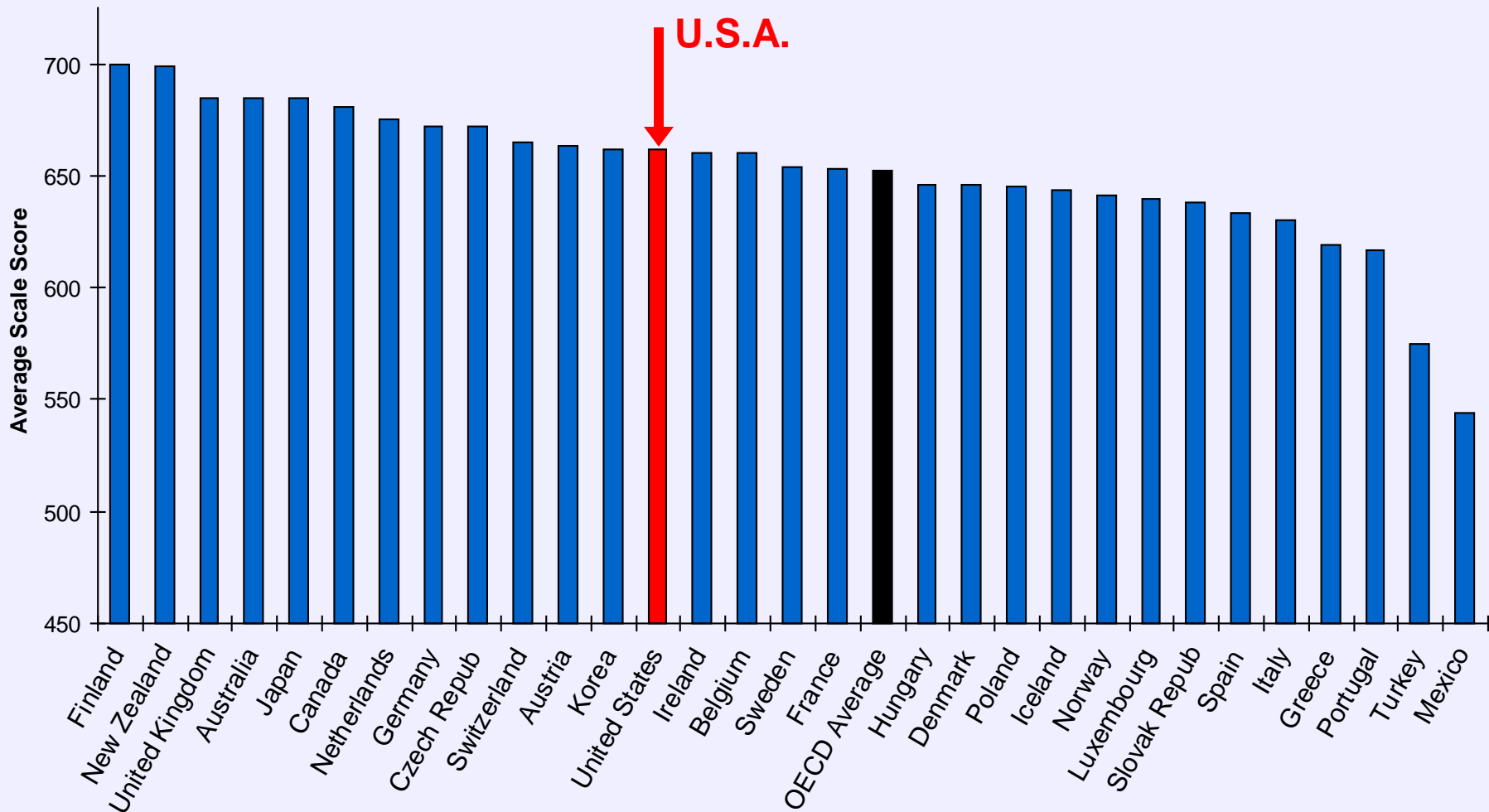
Myth #1

Our high performing students are
all we need to compete
internationally



U.S.A. Ranks 13th out of 30 OECD Countries in the Science Achievement of Highest-Performing* Students

PISA 2006 Science



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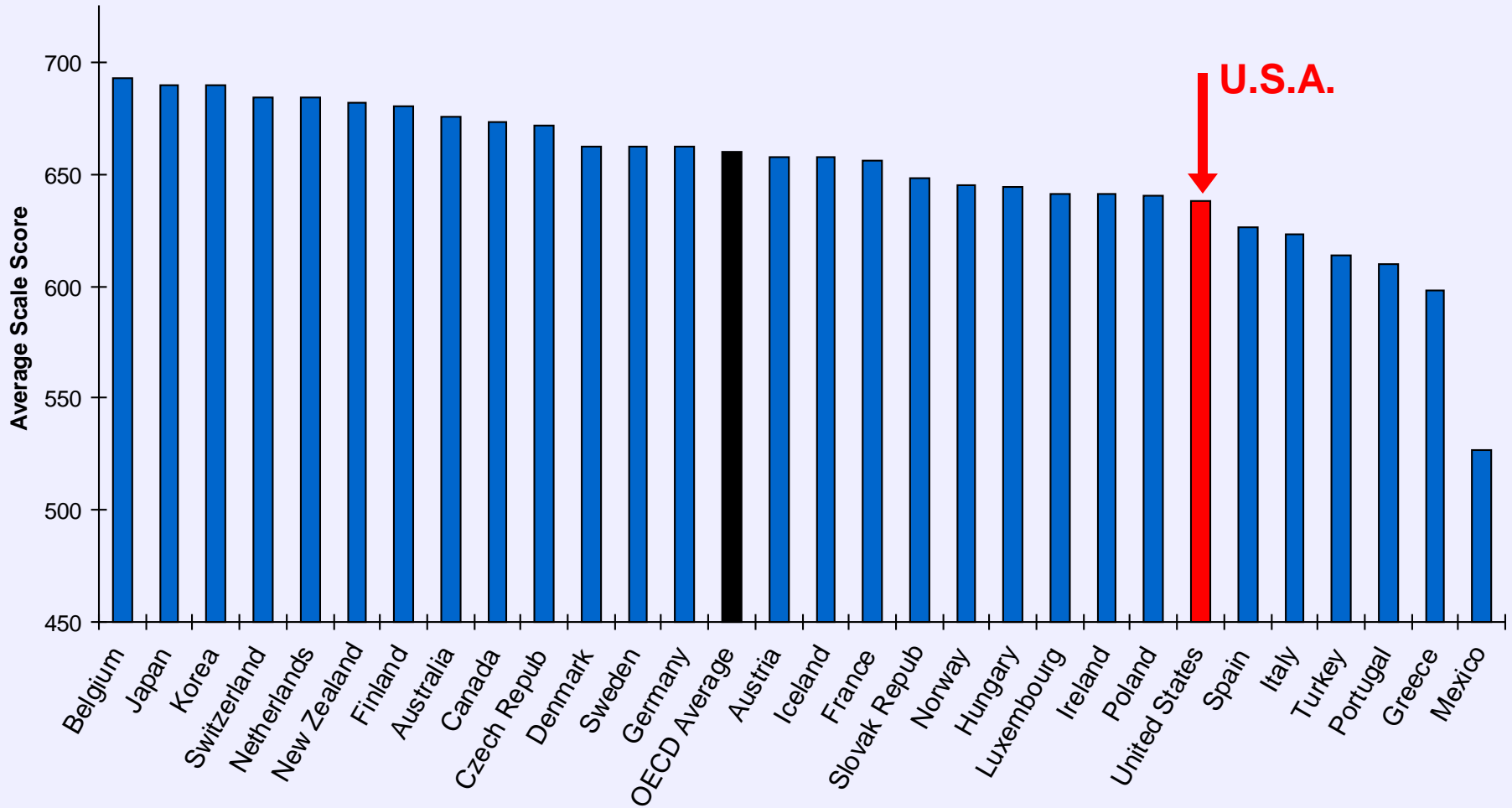
*Students at the 95th Percentile

Source: OECD, PISA 2006 Results, table 2.1c, <http://www.oecd.org/>



U.S.A. Ranks 23rd out of 29 OECD Countries in the Math Achievement of Highest-Performing* Students

PISA 2003 Mathematics



2007 by The Education Trust, Inc.



*Students at the 95th Percentile

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

Myth #2

The United States has so many poor kids – it's just not possible for schools to make a difference



Some countries do a much better job of getting kids to achieve at higher levels – even when they have large percentages of disadvantaged kids

Country	% of Students Within Lowest 15% of ESCS* International Distribution	Average Overall Science Score
U.S.A.	11%	489
Ireland	12%	508
Poland	21%	498
Hong Kong	38%	542
Macao-China	49%	511

*ESCS corresponds to the PISA index of economic, social, and cultural status.

Source: OECD, PISA 2006 Results, table 4.4a and 2.6, <http://www.oecd.org/>



And after separating our students into SES quartiles...

- Our lowest-SES kids are not as disadvantaged as the lowest-SES kids in many other countries
- Our highest-SES kids are more advantaged than the highest-SES kids in many other countries



Yet our low-SES kids do very poorly

Country	Average Low-SES Science Score
U.S.A.	445
Ireland	476
Poland	469
Hong Kong	526
Macao-China	503



Our high-SES kids aren't always the highest performers

Country	Average High-SES Science Score
U.S.A.	541
Ireland	548
Poland	539
Hong Kong	564
Macao-China	518



And we have very large gaps between our high-SES and low-SES kids

Country	Gap in Average Science Score
U.S.A.	96
Ireland	72
Poland	70
Hong Kong	38
Macao-China	15

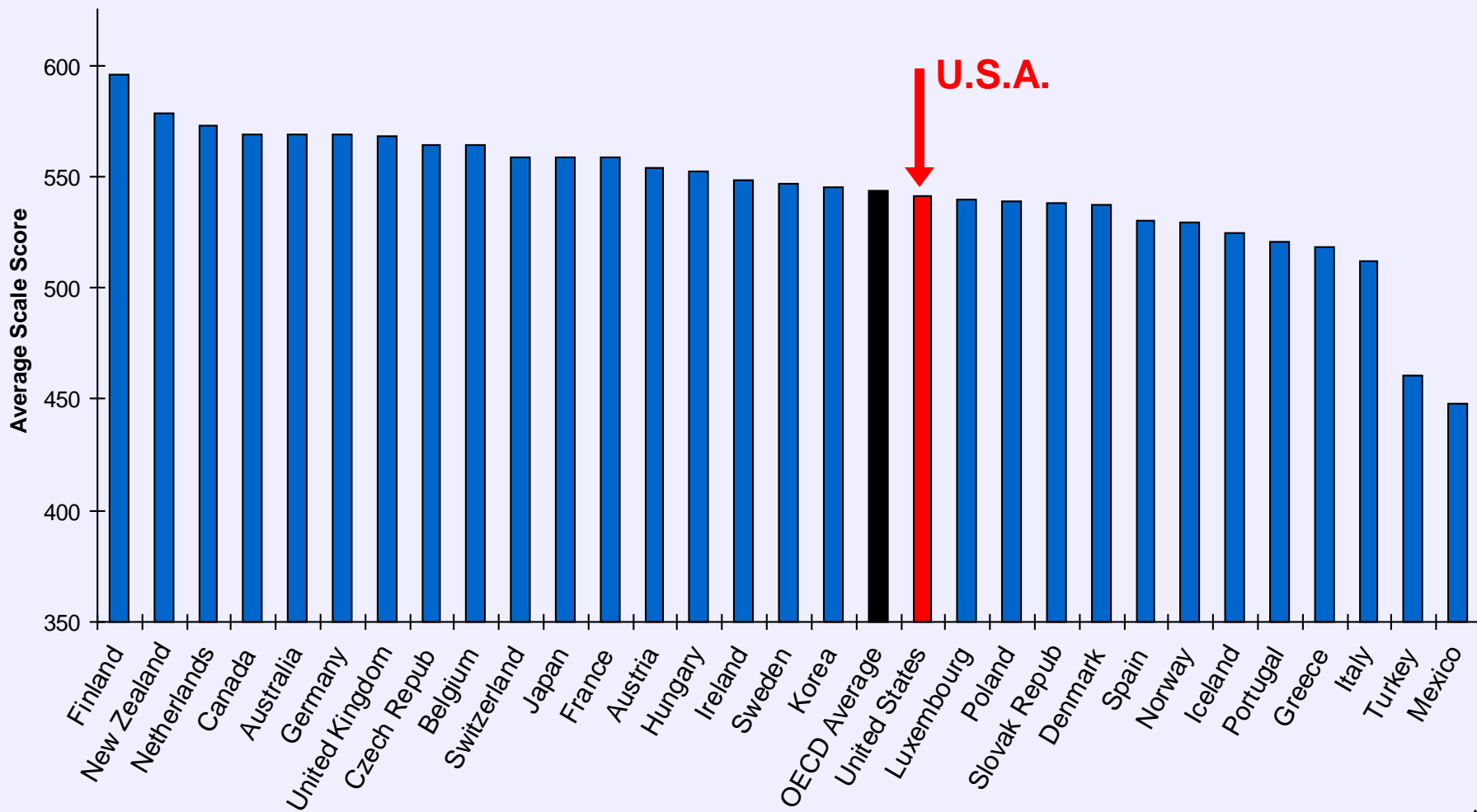


How do our high-SES and low-SES students perform when compared with OECD countries?



U.S.A. Ranks 18th out of 30 OECD Countries in the Science Achievement of High-SES Students

PISA 2006 Science

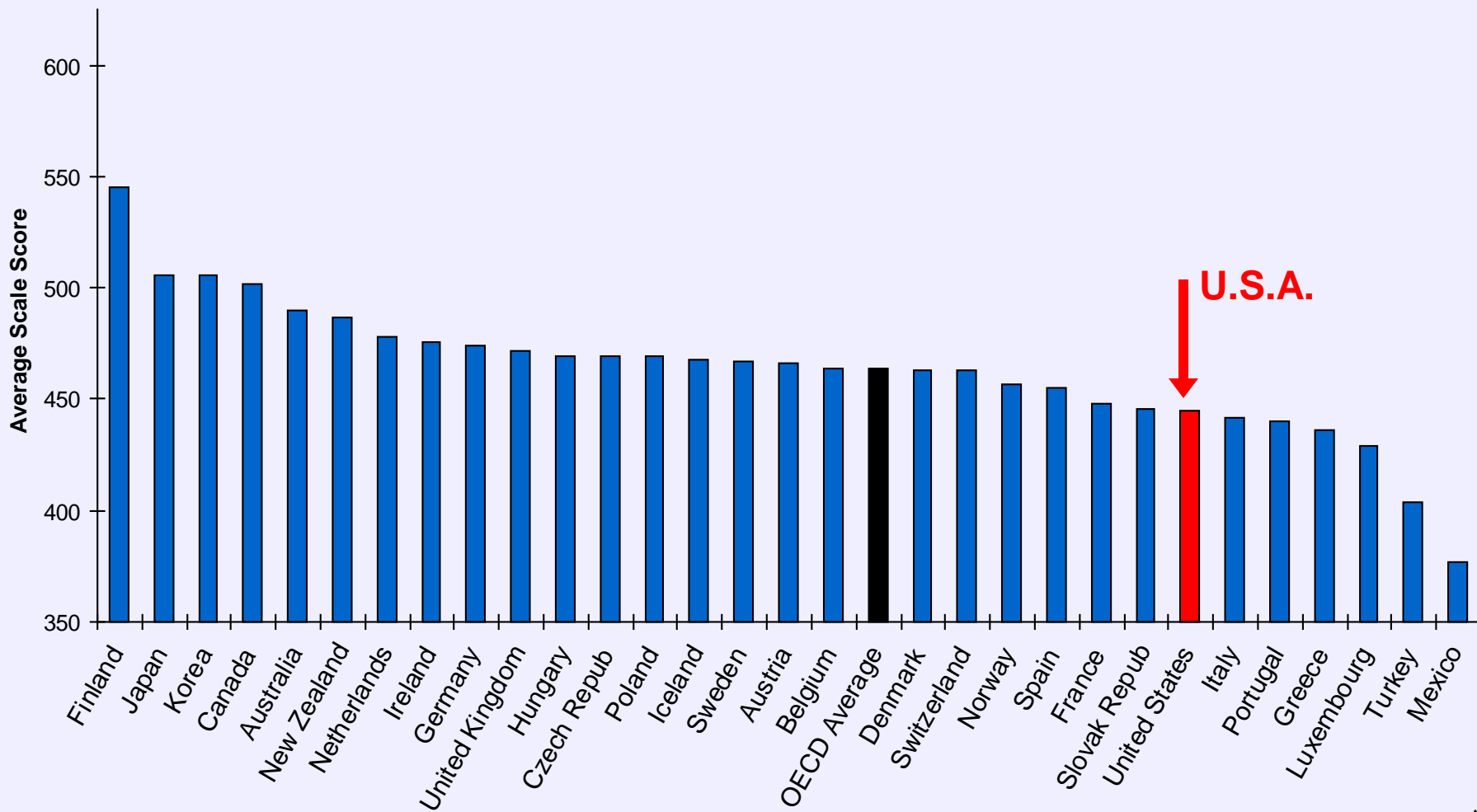


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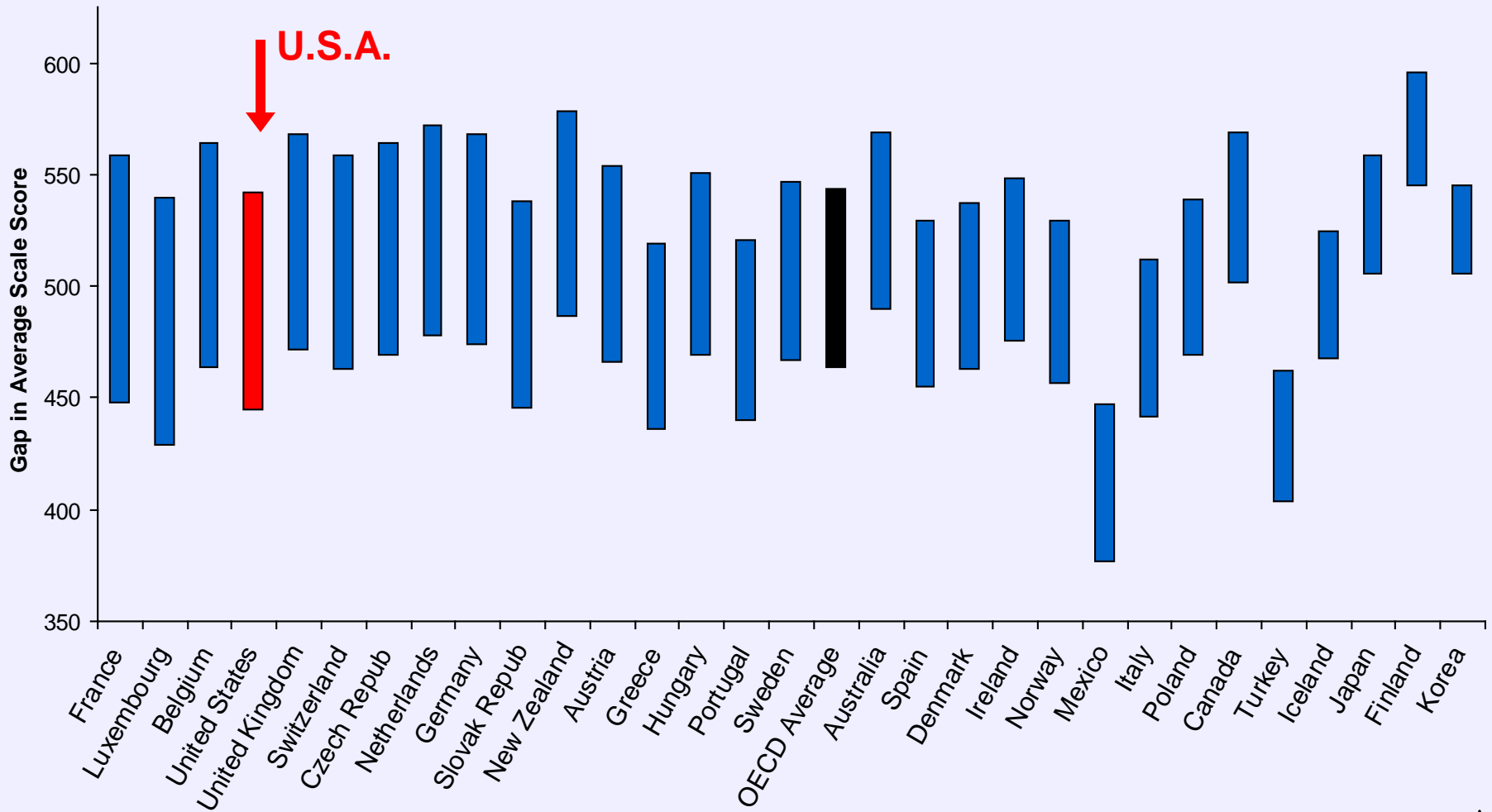
U.S.A. Ranks 24th out of 30 OECD Countries in the Science Achievement of Low-SES Students

PISA 2006 Science



Among OECD Countries, U.S.A. has the 4th Largest Gap Between High-SES and Low-SES Students

PISA 2006 Science

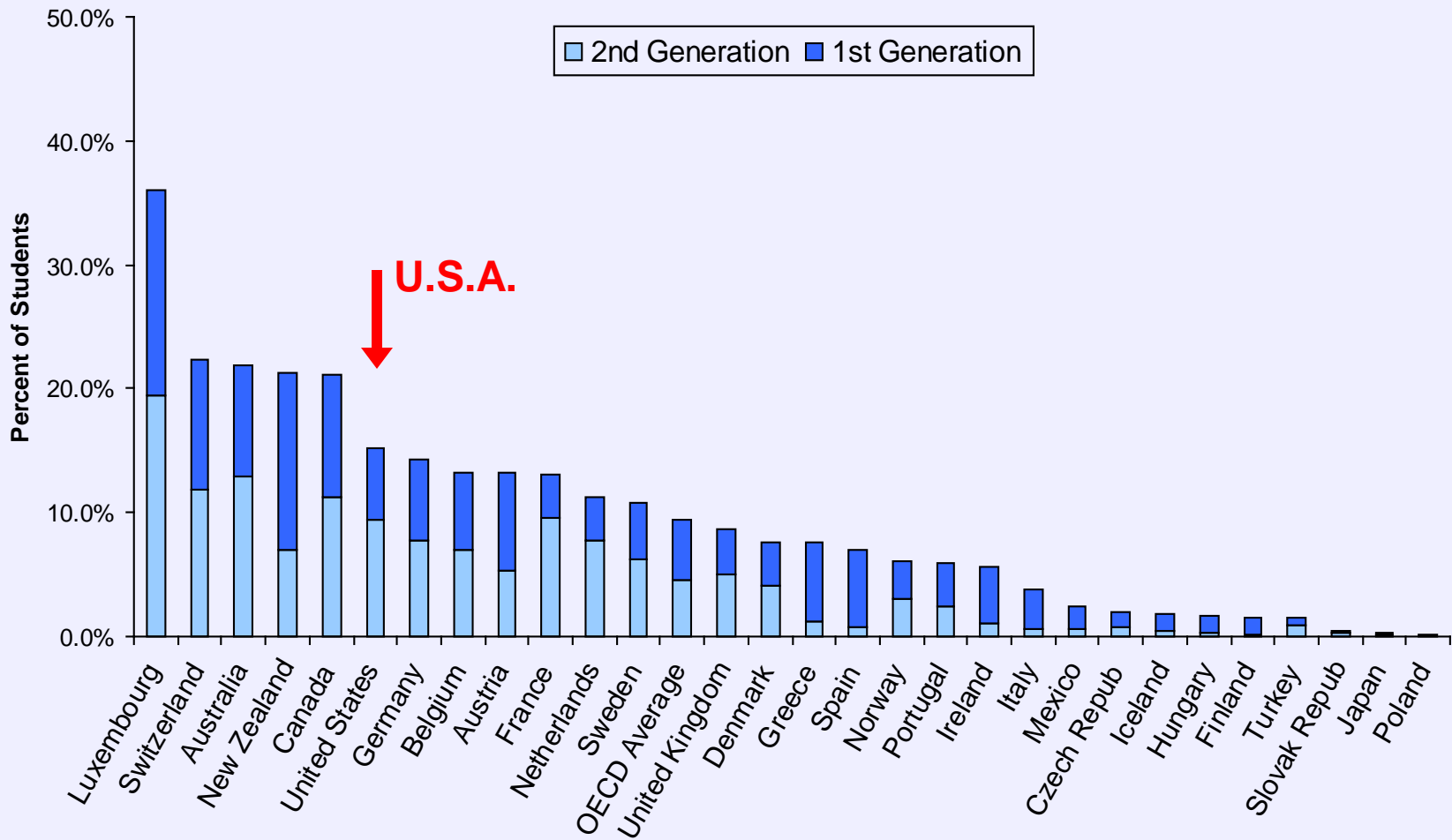


Myth #3

Immigrants! They're ruining us!

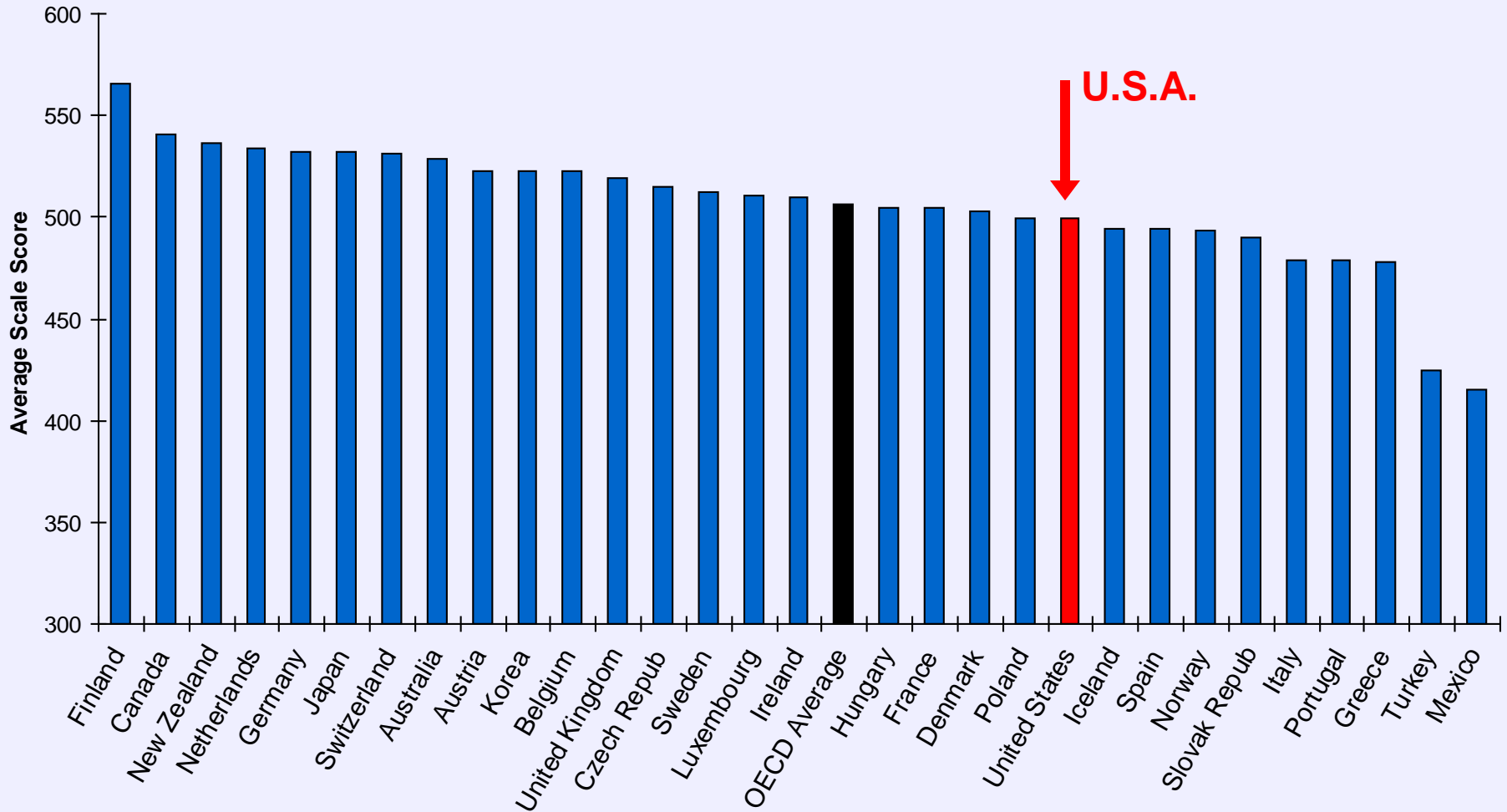


The U.S.A. does have a larger percentage of immigrants and children of immigrants than most OECD countries



But ranks 21st out of 30 OECD countries when only taking into account native student* scores

PISA 2006 Science



*Students born in the country of assessment with at least one parent born in the same country

And despite having more 1st and 2nd generation students*, Hong Kong students perform better

*1st generation students were born in another country and their parents were born in another country

Country	% 1 st Generation Students	Average Science Score
U.S.A.	5.8%	442
Hong Kong	19.2%	521

*2nd generation students were born in the country of assessment but their parents were born in another country

Country	% 2 nd Generation Students	Average Science Score
U.S.A.	9.4%	456
Hong Kong	24.6%	551

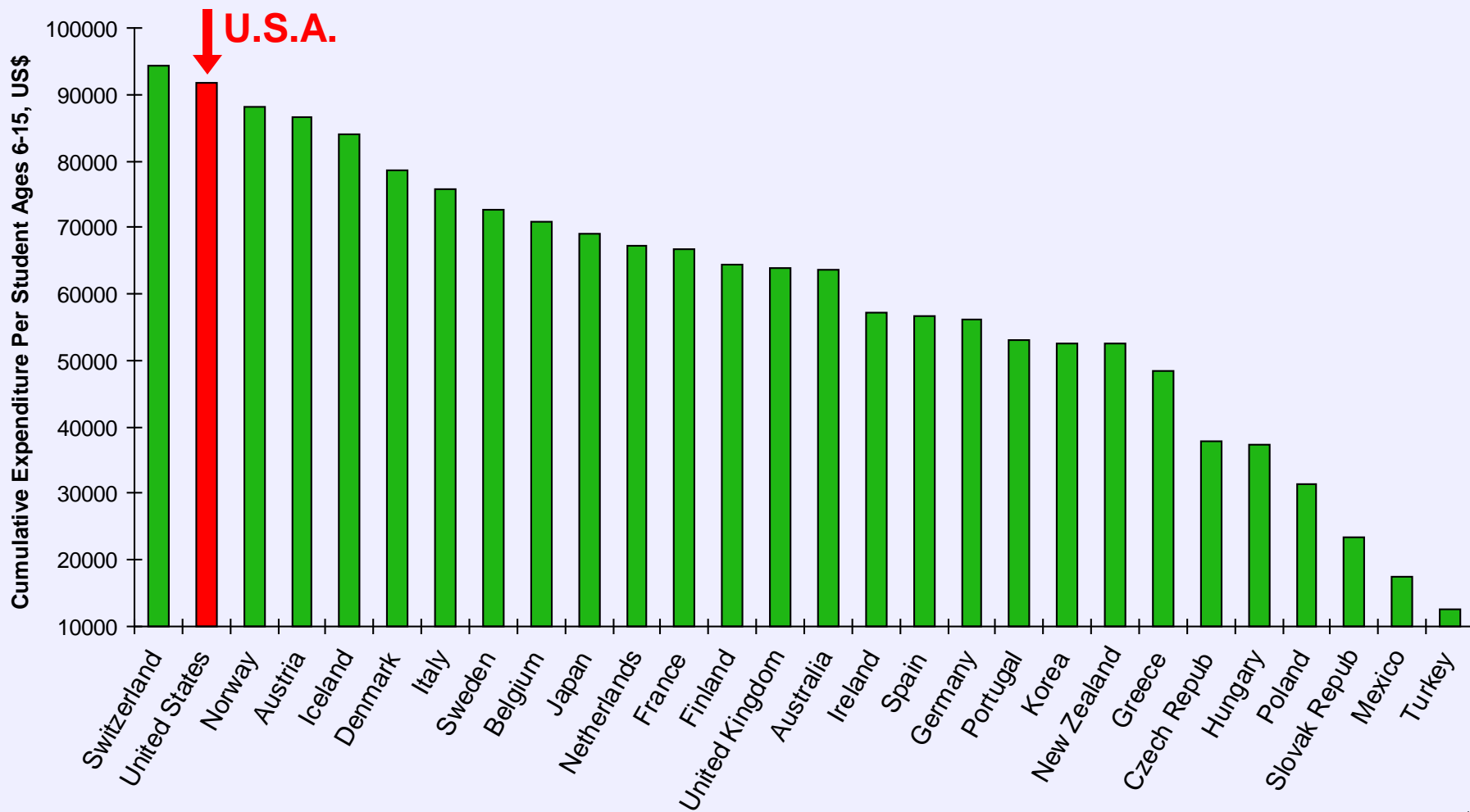


Myth #4

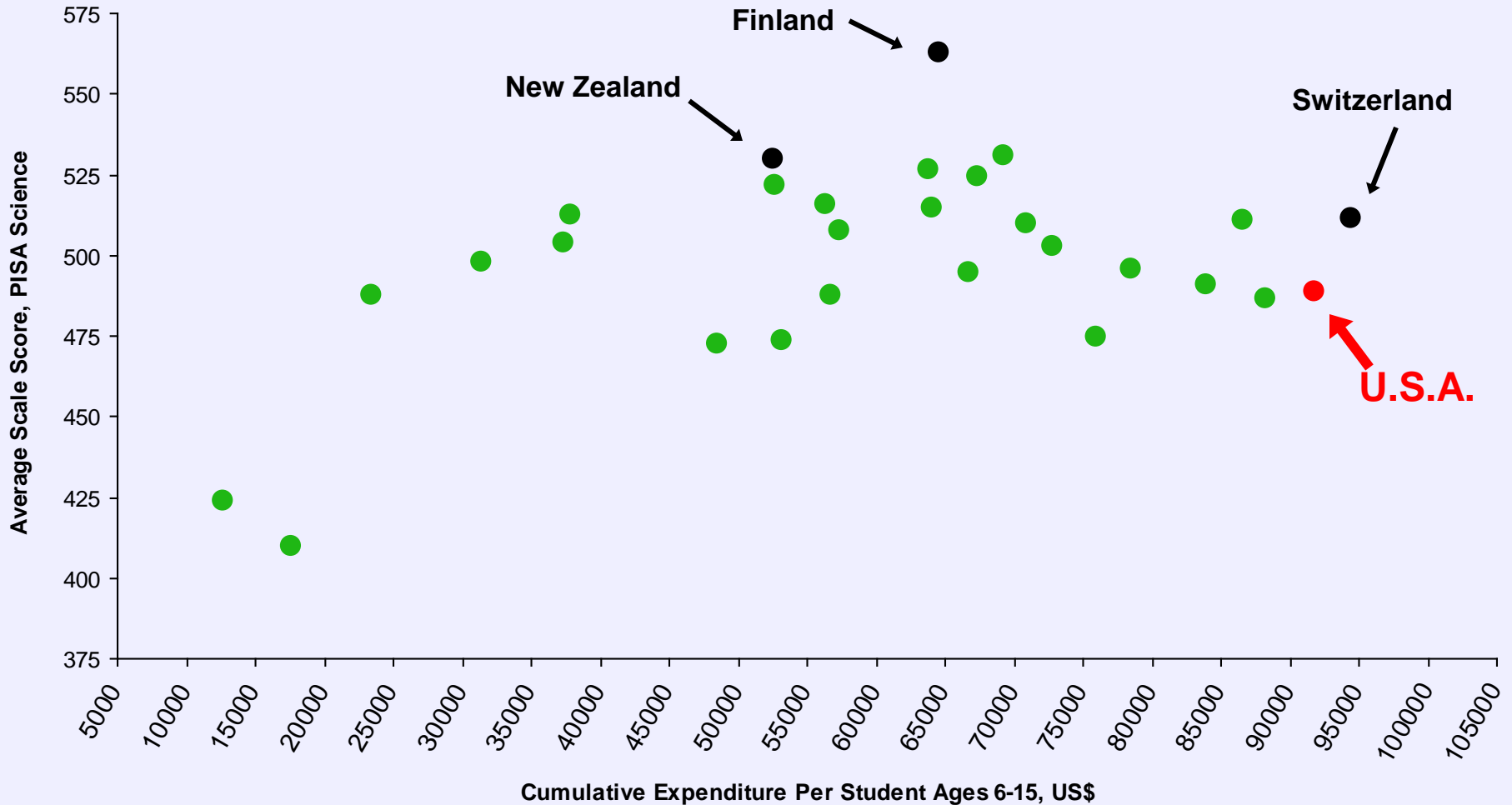
The United States doesn't spend
enough on education



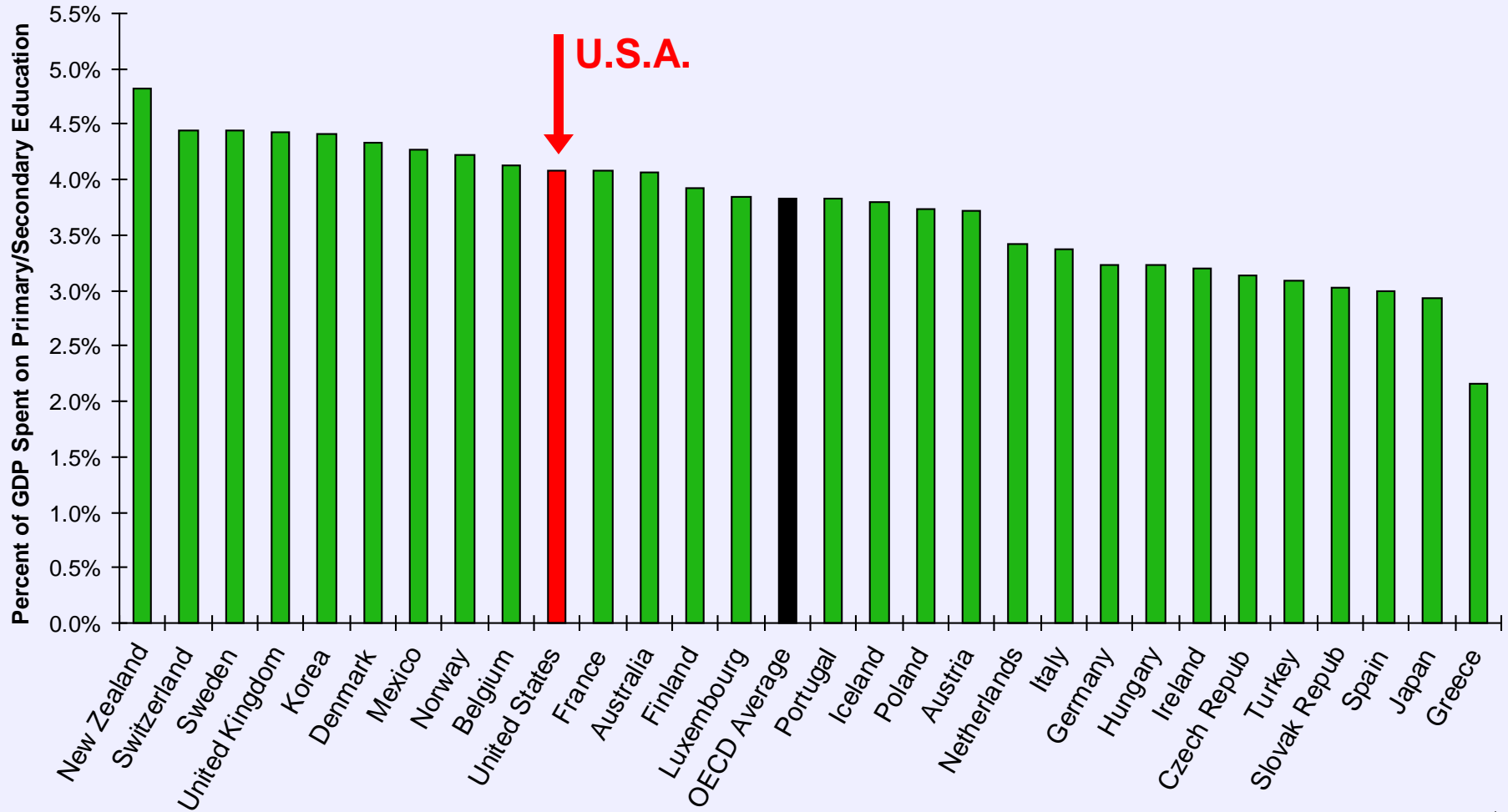
The United States cumulatively spends more per student than 26 other OECD countries



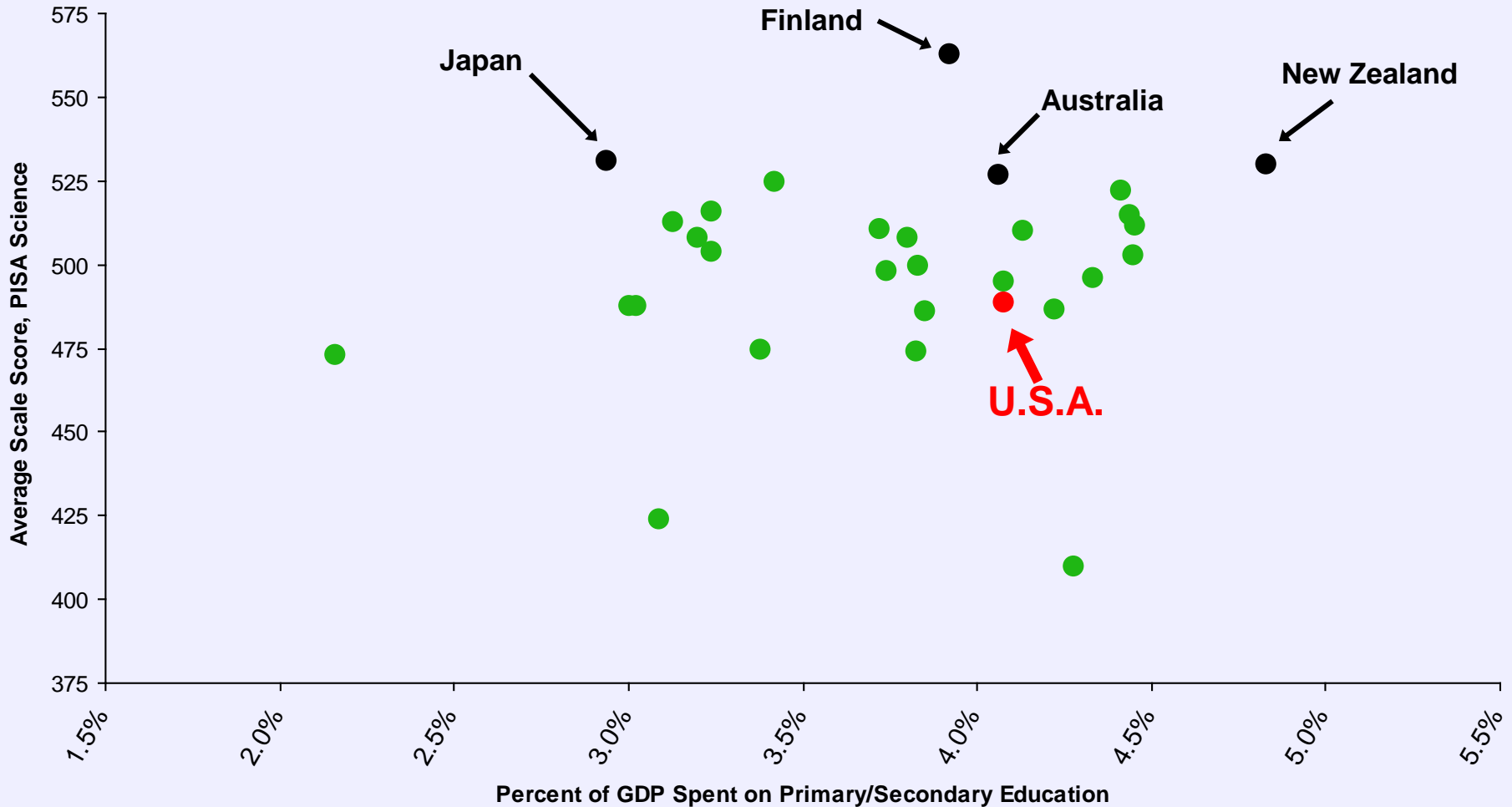
But our return on that investment is not as high



The United States ranks in the top 10 in terms of spending effort (out of 29 OECD countries)



But our return on that effort is also not as high

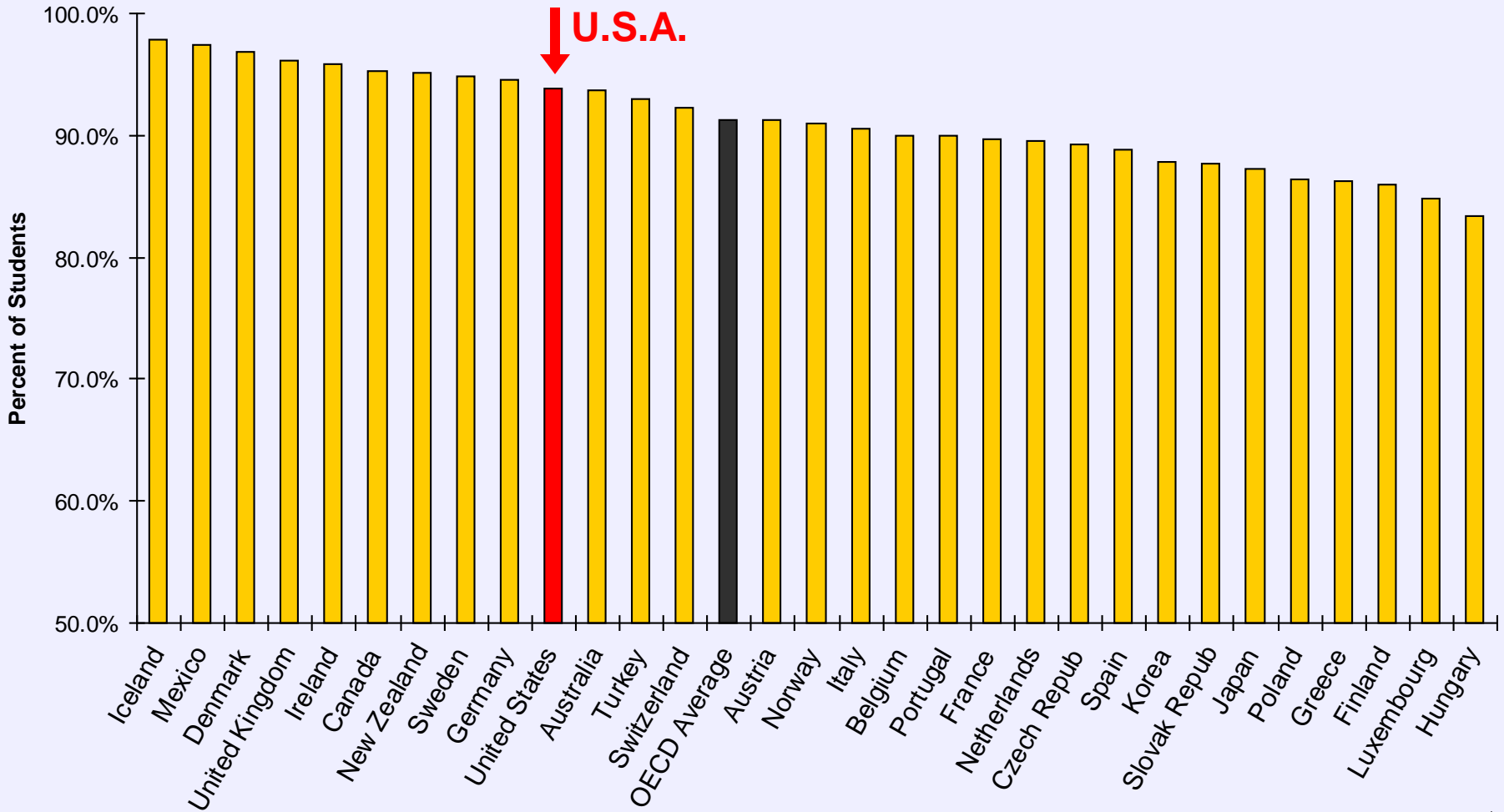


Myth #5

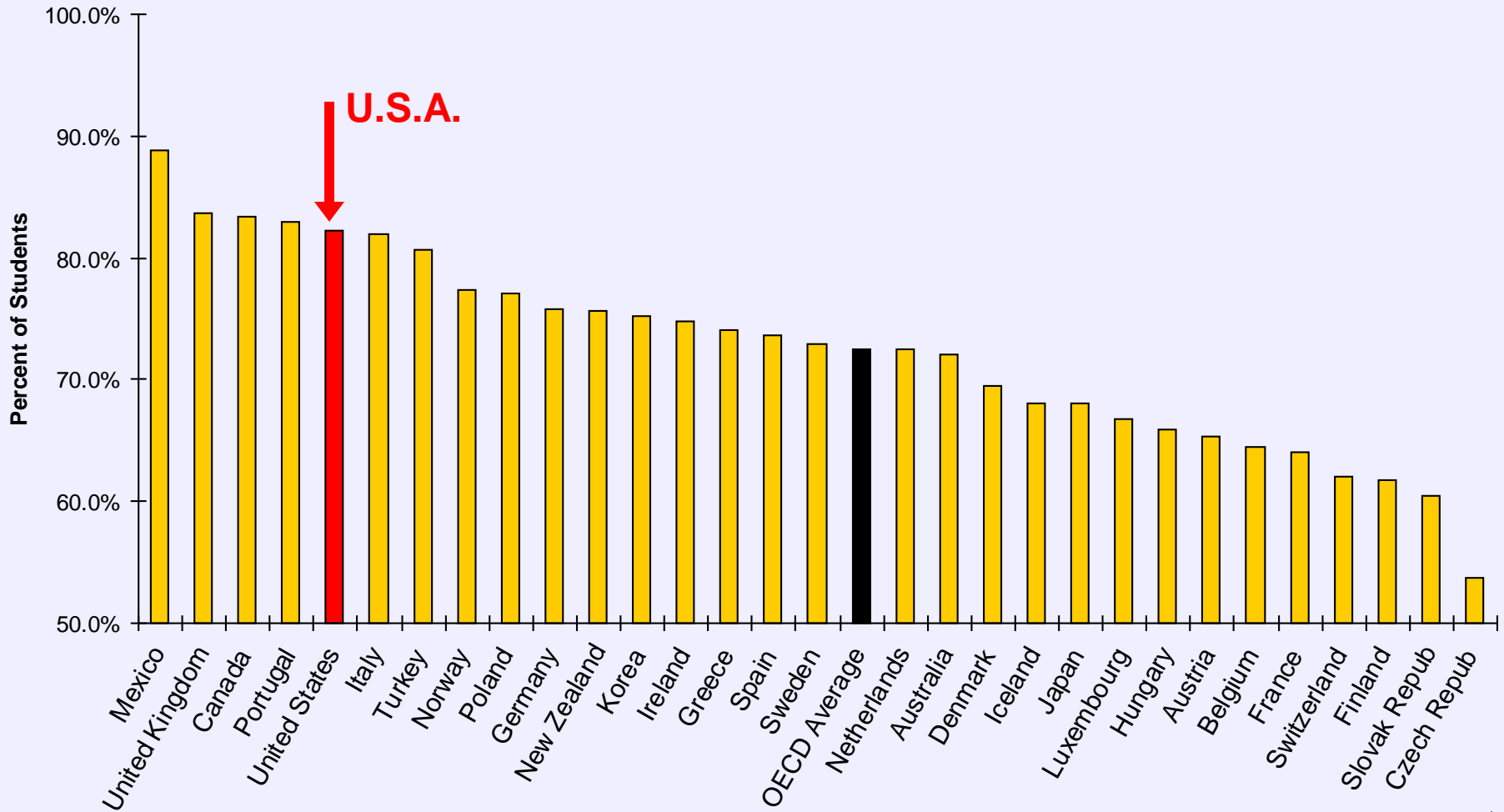
American kids just don't value math and science – we can't teach them well in those subjects if they don't really want to learn them



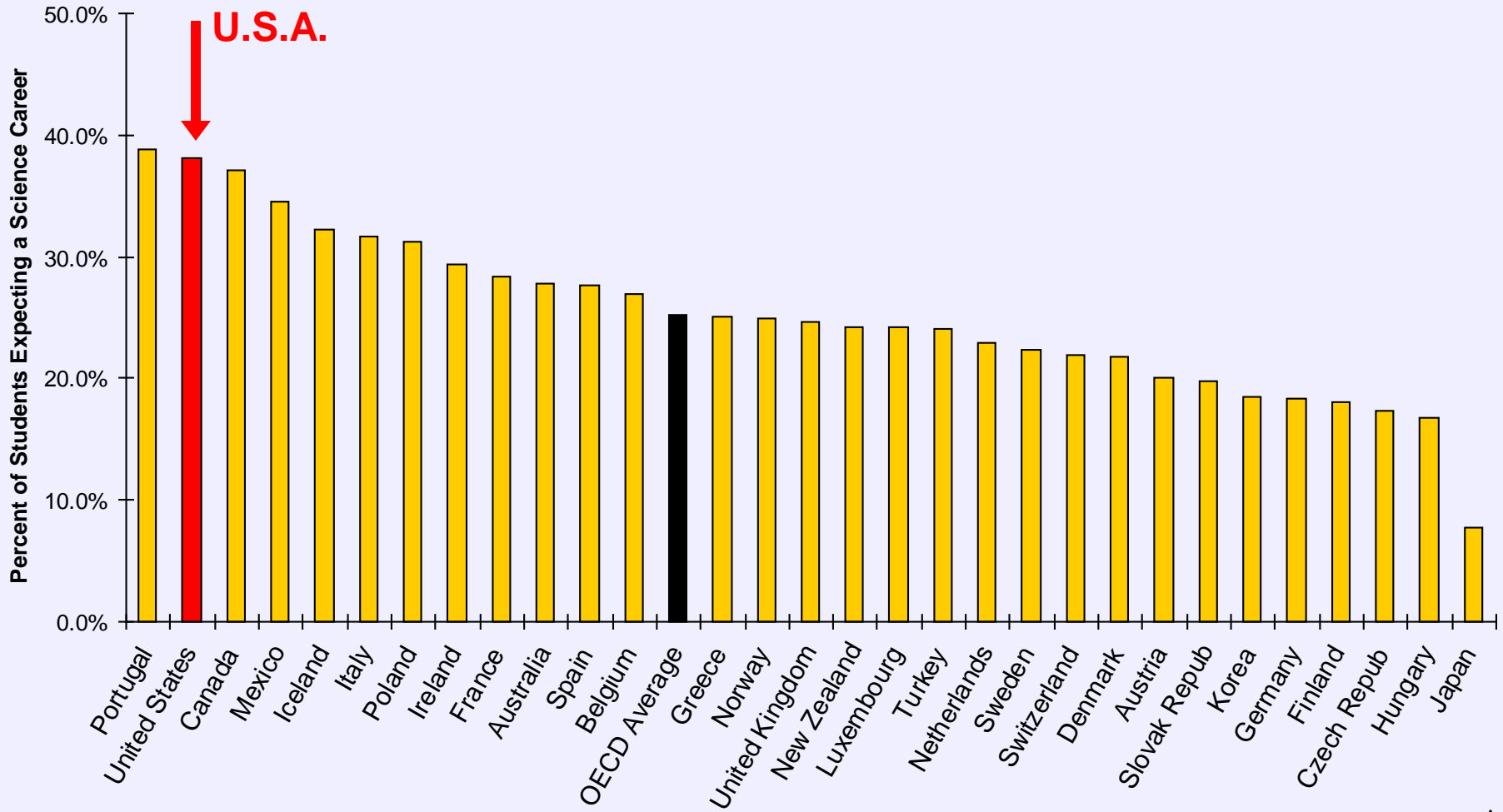
Most United States 15-year-olds report that doing well in math at school is important



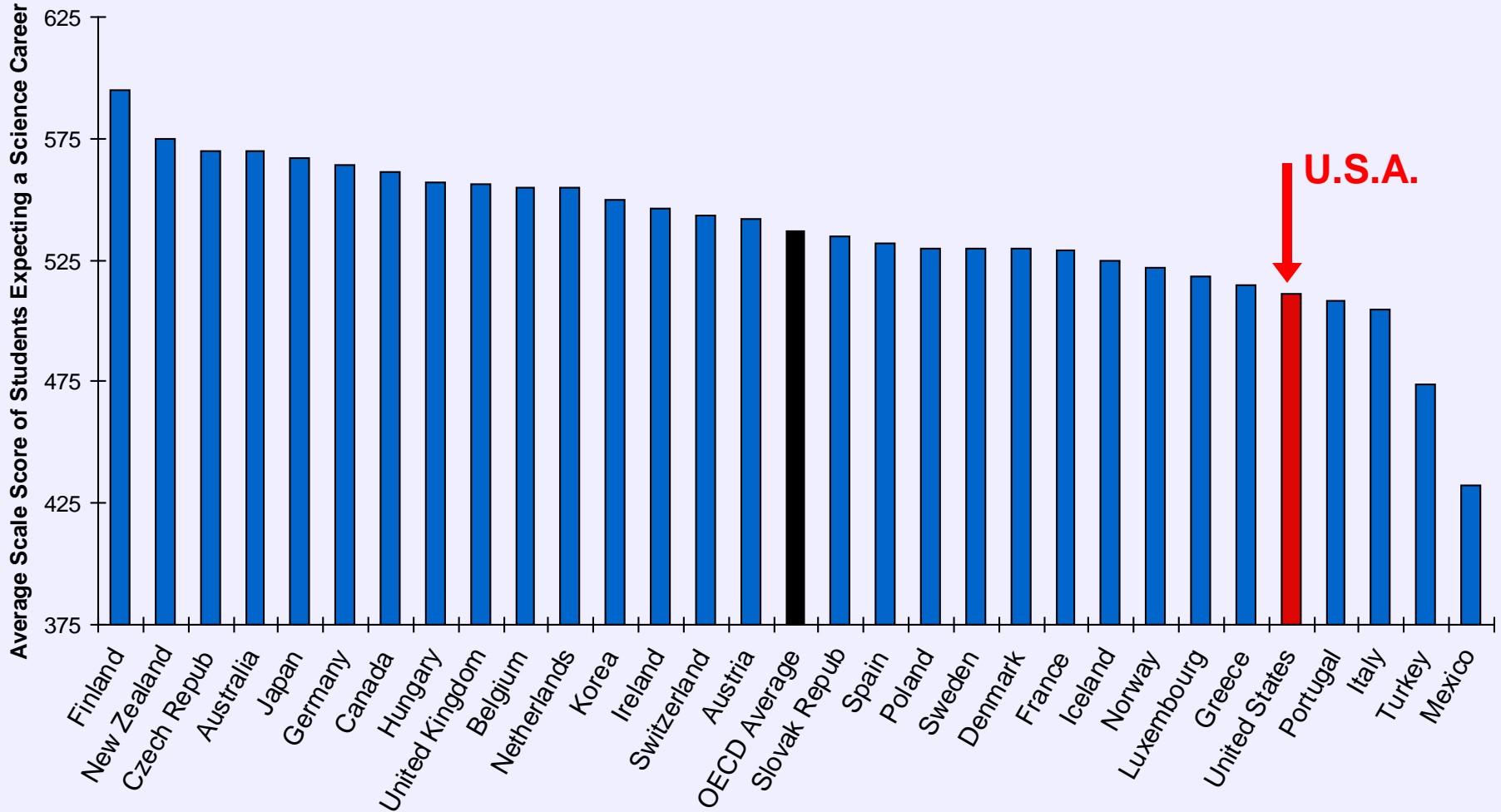
Most United States 15-year-olds report that doing well in science at school is important



Over 1/3rd of United States 15-year-olds report that they expect to have a science-related career at age 30



But even those U.S. students who expect to have a career in science don't perform as well as students in other countries

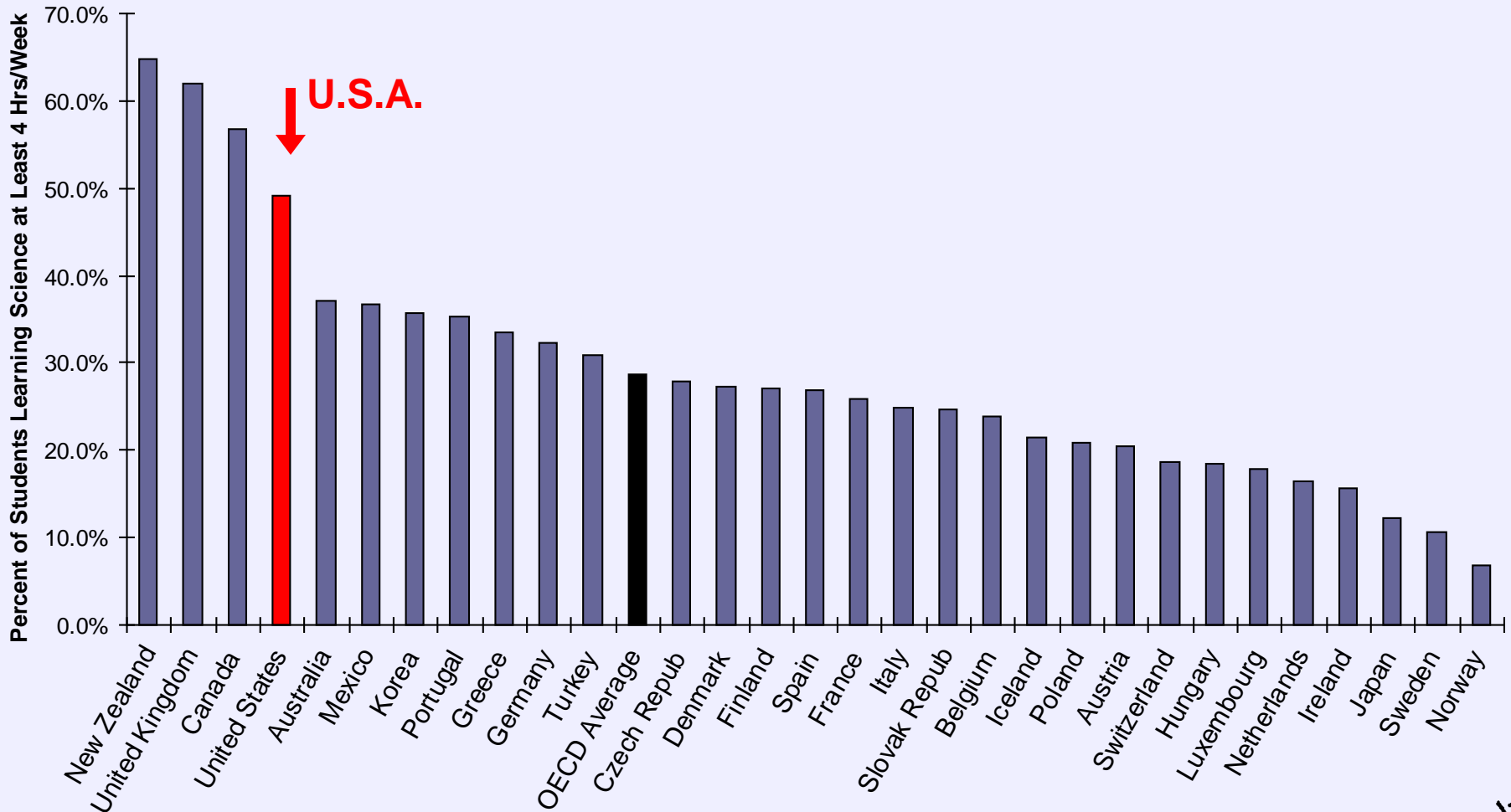


Myth #6

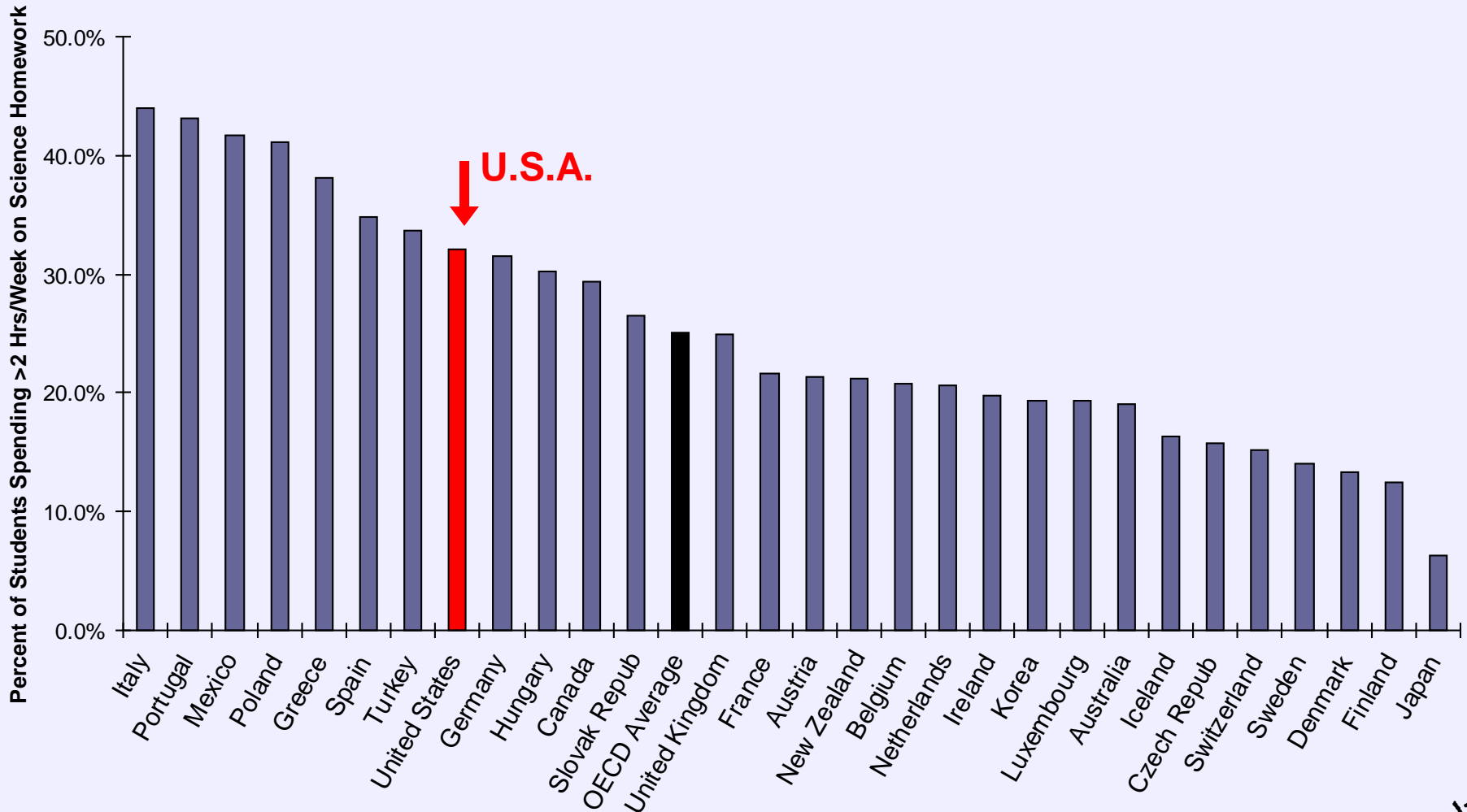
If our kids could spend more time
on science and math, they would
do better



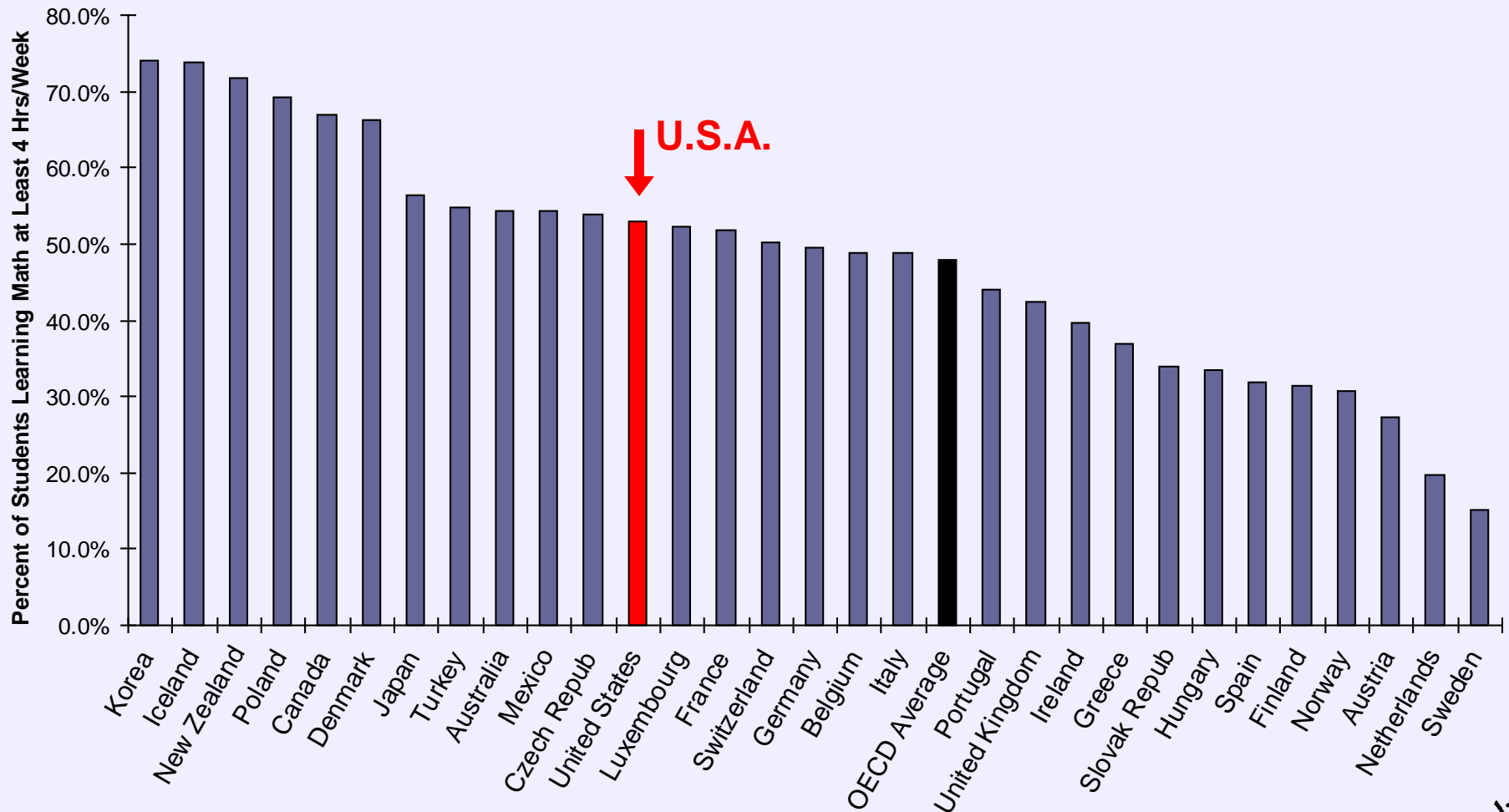
Students in most OECD countries spend less time per week learning science



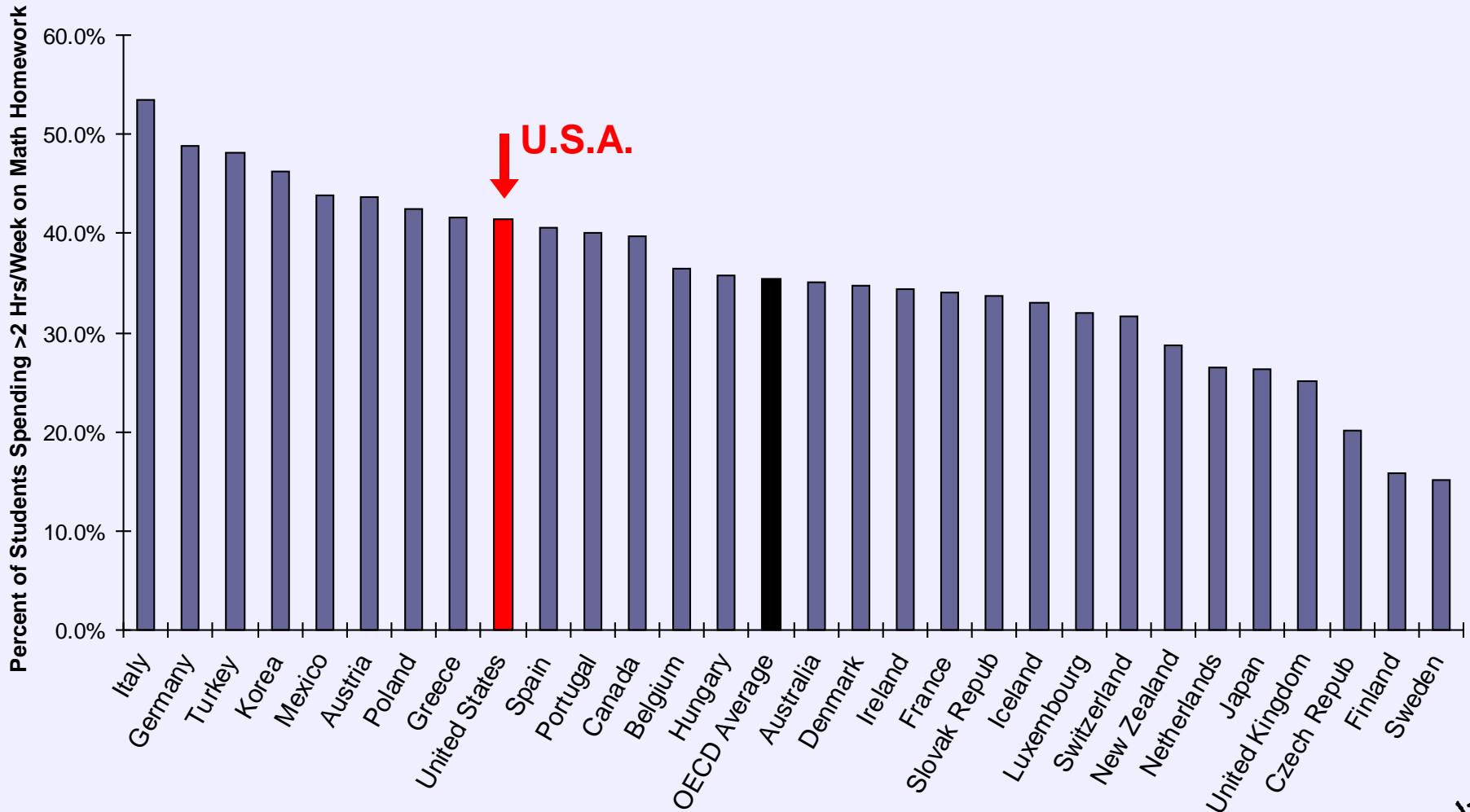
Students in most OECD countries also spend less time per week on science homework



Students in over half of OECD countries spend less time per week learning math



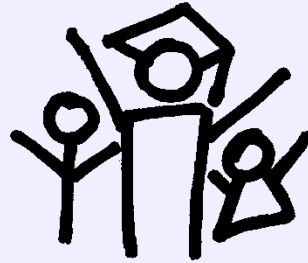
Students in over half of OECD countries also spend less time per week on math homework



It is high time that as a nation
we stop making excuses

Our international competitiveness
depends on it





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