International Assessments

September 5, 2012

DAC Annual Meeting

Race to the Top Initiatives International Assessments

- Florida will participate in international linking and benchmarking studies for TIMSS and PISA
- TIMSS and PIRLS were administered in Spring 2011
- PISA will be administered in October 2012

International Assessments

- Offer a unique opportunity to make international comparisons and analyze the progress of student achievement
- Determine areas of need for additional instruction
- Each assessment is based on a separate and unique framework and set of assessment items

NAEP and International Assessments in Florida

Florida State Statute 1008.22 (2)

"The Commissioner of Education shall direct Florida school districts to participate in the administration of NAEP, or similar national or *international* assessment program…"

International Assessments

Questions	PIRLS	TIMSS	PISA
Name	Progress in International Reading Literacy Study	Trends in International Mathematics and Science	
What year did the study begin?	2001	1995	2000
How often is the study conducted?	Every 5 years	Every 4 years	Every 3 years
When will the study be conducted next?	2016	2015	2012
How many jurisdictions usually participate in the assessment?	58 education systems	Grade 4: 60 total Grade 8: 59 total	65 education systems
What is the target population?	Fourth-graders	Fourth- and eighth-graders	15-year-olds
How many U.S. participants were in the most recent study?	15,361	Grade 4: 17,051 Grade 8: 30,254	11,725
What is assessed?	Reading literacy	Mathematics, science	Reading, mathematical, and scientific literacy, with one subject assessed in depth at each administration (on a rotating basis) and the other two subjects as minor domains
Are state-level data available?	Yes, Florida will receive state-level data for PIRLS 2011.	For a few participating states in 1999, 2007, and 2011. For TIMSS 2011*, 9 states will receive state-level data (AL, CA, CT, CO, FL, IN, MA, MN, and	Yes, Connecticut, Florida, and Massachusetts will receive state-level data for PISA 2012
Are district-level data available?	No	For a few participating districts in 1995, 1999, and 2011. Hillsborough and Miami-Dade will receive projected TIMSS scores in mathematics	No

* The TIMSS Benchmarking studies provide an opportunity for states and school districts to assess the comparative international standing of their students' achievement. The participating states and districts administered the assessments following the same guidelines for the main TIMSS assessments, but separately from the U.S. national samples.

Link posted at http://www.fldoe.org/asp/naep/iah.asp

TIMSS

- Measures student learning in mathematics and science at grades 4 and 8 every 4 years since 1995
- Administered Spring 2011
- Compares achievement of American students to that of students in more than 55 countries and jurisdictions
- For TIMSS 2011 at grade 4, only Florida will receive state-level data
- For TIMSS 2011 at grade 8, 9 states will receive state-level data: AL, CA, CT, CO, **FL**, IN, MA, MN, and NC
- For results for TIMSS 2007, go to:

http://timss.bc.edu/timss2007/sciencereport.html

http://timss.bc.edu/timss2007/mathreport.html

TIMSS and NAEP are Similar Assessments

Similarities	NAEP	TIMSS
	Are administered by NCES Are sample based assessments Assess grade 4 and 8 students (the linking study will only provide results at grade 8) Have similar types of questions Assess mathematics and science across a similar range of content areas	
Differences	**NAEP**	**TIMSS**
	Sampling processes and different sizes Specifications for questions Emphasis and distribution of questions across content areas	

TIMSS Content Compared with NAEP: Mathematics

	NAEP (grade 8)	TIMSS
Similarities	• Similar frameworks that assess the same domains: number, measurement, geometry, data, and algebra • Strong content match (90% of TIMSS items fit NAEP's most detailed framework descriptions)	
Differences	• Higher percentage of measurement items at 4th grade • Greater emphasis on geometry at 8th grade • Larger sample, with greater precision of estimates	• Higher percentage of geometry, data analysis and probability items at 4th grade • Greater emphasis on number at 8th grade

TIMSS Content Compared with NAEP: Science

	NAEP (grade 8)	TIMSS
Similarities	•Frameworks focus on life science, earth science, and physical science (physics and chemistry) •Majority of items are multiple-choice	
Differences	• Greater emphasis on Earth science at 4th and 8th grade • Larger sample, with greater precision of estimates	• Greater emphasis on life science at 4th grade • Greater emphasis on physical science at 4th and 8th grade

TIMSS Released Mathematics Test Item Grade 8

If $x = -3$, what is the value of $-3x$?

(A) -9

(B) -6

(C) -1

(D) 1

(E) 9

Overall Percent Correct		
Hong Kong, SAR	84	▲
Korea, Republic of	84	▲
Chinese Taipei	83	▲
Singapore	80	▲
Estonia	77	▲
Japan	74	▲
Russian Federation	73	▲
Hungary	69	▲
Israel	67	▲
Serbia and Montenegro	65	▲
United States	65	▲
Belgium (Flemish)	63	▲
Armenia	62	▲
Latvia	61	▲
Lithuania	60	▲
Slovak Republic	58	▲
Bulgaria	57	▲
Moldova, Republic of	54	▲
Netherlands	54	▲
Romania	51	○
Slovenia	51	○
Lebanon	49	○
International average	**48**	

United States was 1 of 19 countries/jurisdictions to score higher than the international average

Additional examples of released mathematics TIMSS items are available at http://nces.ed.gov/timss/educators.asp

TIMSS Released Science Test Item Grade 8

The shape of the moon appears to change regularly during each month. Which of the following best explains why the shape of the moon appears to change?

Ⓐ The Earth turns on its axis.

Ⓑ The Moon turns on its axis.

Ⓒ The Moon orbits around the Earth.

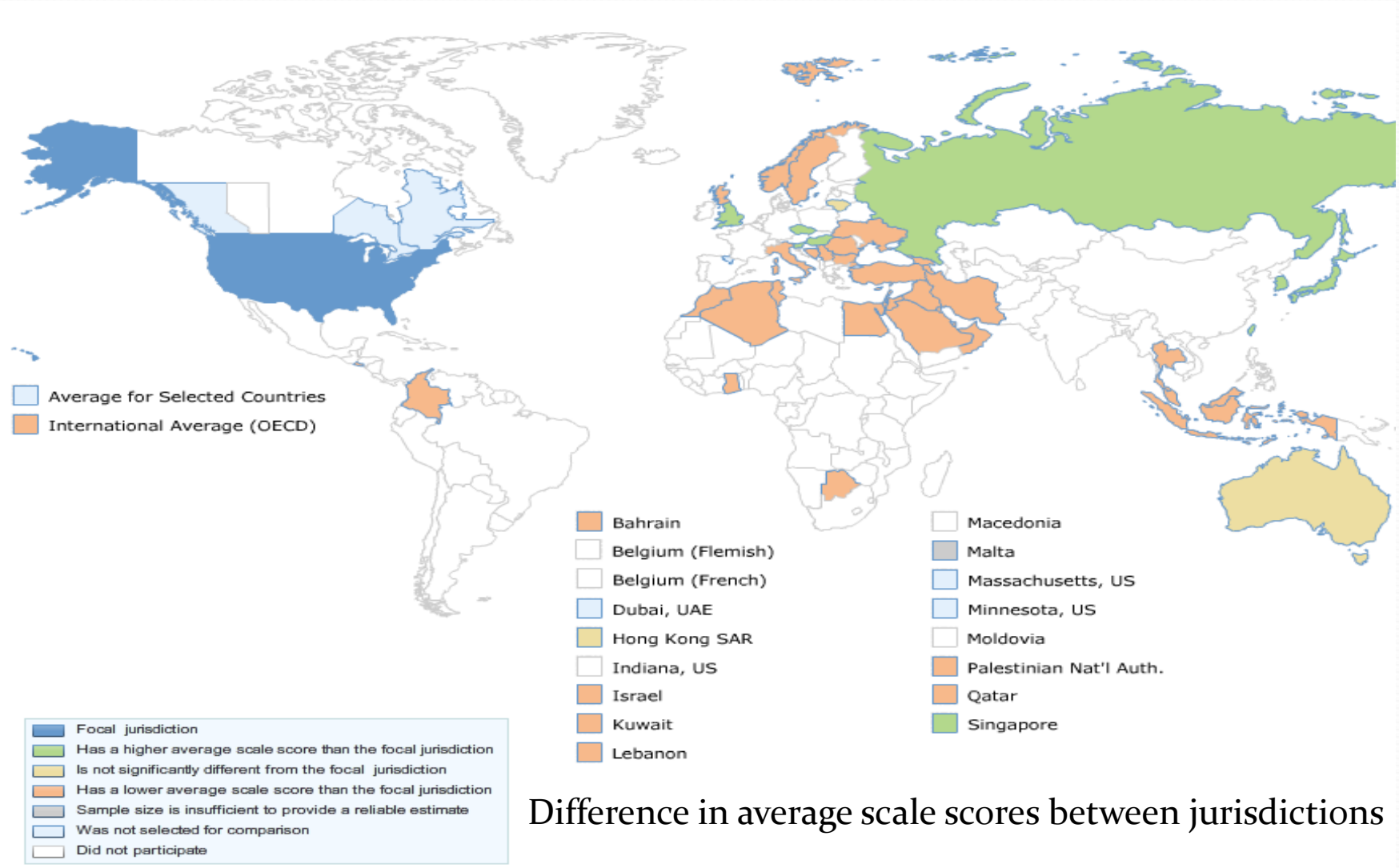
Ⓓ Clouds cover the Moon.

Overall Percent Correct		
Hong Kong, SAR	72	▲
Malaysia	63	▲
Japan	58	▲
Singapore	58	▲
New Zealand	58	▲
Korea, Republic of	58	▲
Chinese Taipei	57	▲
Norway	56	▲
Hungary	55	▲
Estonia	54	▲
Serbia and Montenegro	54	▲
Australia	54	0
Bahrain	53	0
Sweden	53	0
Chile	53	0
Bulgaria	53	0
Scotland	53	0
Philippines	53	0
England	52	0
Egypt	52	0
United States	51	0
Armenia	51	0
Lithuania	51	0
Lebanon	50	0
International average	50	

United States scored not significant from the International Average. Of the 11 countries/jurisdictions that scored above the International Average, 7 also scored above the International Average on the previous Mathematics question

Additional examples of released science TIMSS items are available at http://nces.ed.gov/timss/educators.asp

TIMSS Grade 8 Science, 2007
Home Possess a Computer



Difference in average scale scores between jurisdictions

NAEP-TIMSS Linking Study

- All states grade 8 NAEP 2011 results in mathematics and science will be projected onto the TIMSS scoring scale
- Actual TIMSS scores for Florida, because we paid to be over-sampled and receive state-level results, will be compared to projected TIMSS scores to ensure validity of the linking study
- TIMSS results for Florida (and 8 other states) will be released at the same time as the TIMSS international and national results in late 2012
- Results of the linking study-with projected TIMSS scores-will be released in early 2013

NAEP-TIMSS Linking Study

NAEP
NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

2011

GRADE 8 MATHEMATICS & SCIENCE

NAEP-TIMSS International Linking Study

WHAT IS NAEP?

The National Assessment of Educational Progress (NAEP) is the only nationally representative assessment of what our nation's students know and can do in core subjects.

WHAT IS TIMSS?

The Trends in International Mathematics and Science Study (TIMSS) provides reliable and timely data on the mathematics and science achievement of U.S. fourth- and eighth-grade students compared to that of students in other countries.

In 2011, NCES will conduct a special study to link the mathematics and science results of the National Assessment of Educational Progress (NAEP) and the Trends in International Mathematics and Science Study (TIMSS).

The NAEP-TIMSS 2011 International Linking Study in grade 8 mathematics and science offers an exciting opportunity for states, where NAEP scores will be placed on the TIMSS mathematics and science scale to provide a comparison between states and more than 50 participating countries. NAEP and TIMSS will both be administering assessments in grade 8 in 2011 enabling the link between the two assessments to occur.

In addition to the NAEP grade 8 state-level results, which include comparisons to participating states and the nation and NAEP trend comparisons from 1992 to 2011, states will receive a projected TIMSS score and comparisons to participating countries.

Additional information about TIMSS is available at http://nces.ed.gov/timss/.

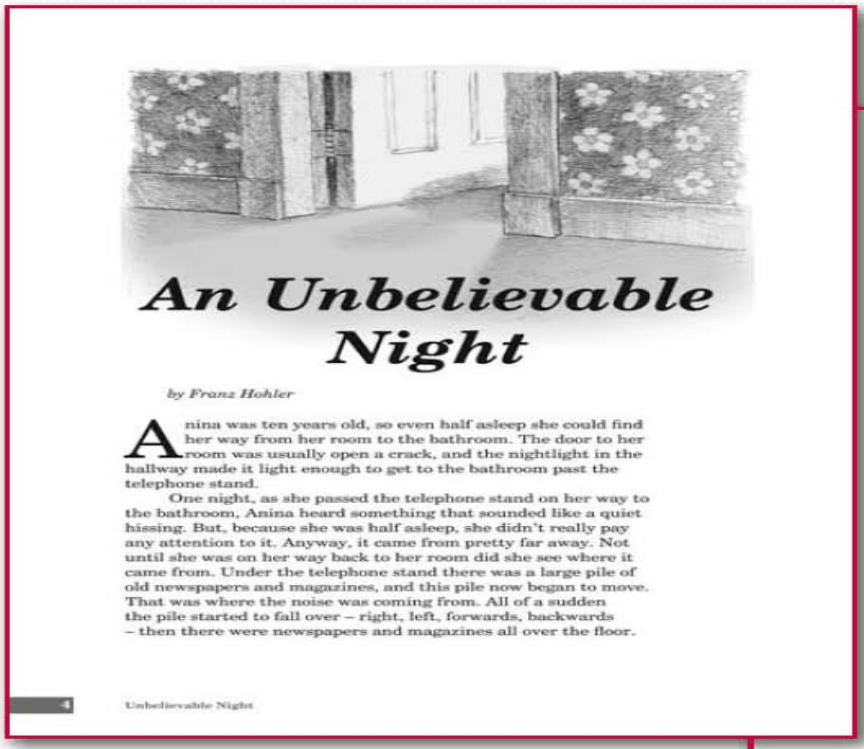
PIRLS

- Measures students' reading comprehension of literary and informational text at grade 4 every 5 years since 2001
- Compares achievement of American students to that of students in more than 55 countries and jurisdictions
- For PIRLS 2011, Florida is the only state that will receive state-level data
- Includes student, teacher, and principal questionnaires to measure key aspects of students' home and school environment as well as school and teacher practices related to reading instruction
- Examples of released PIRLS items can be viewed at http://nces.ed.gov/pubs2008/2008017_2.pdf

PIRLS Content Compared with NAEP

	NAEP (grade 4)	PIRLS
Similarities	• Reading as a constructive process • Similar cognitive skills measured	
Differences	• Longer passages • Larger sample, with greater precision of estimates • 1/5th of PIRLS items do not fit in NAEP framework	• Shorter passages, about one grade level below NAEP • Slightly easier questions overall • Regularly asks students to retrieve explicitly stated information, which NAEP does not do

PIRLS Released Test Item

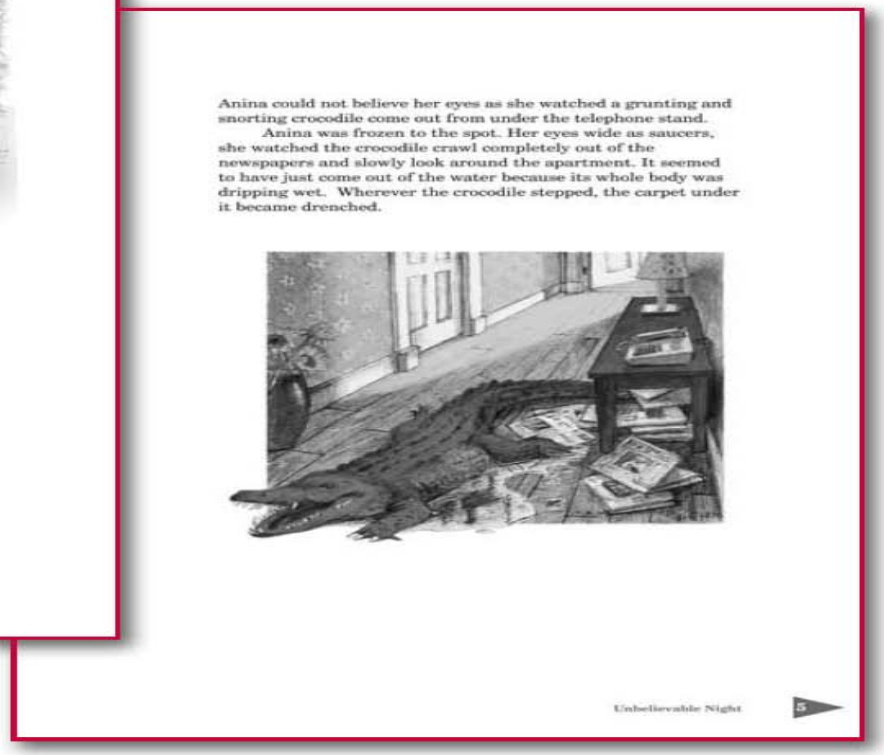


An Unbelievable Night

by Franz Hohler

Anina was ten years old, so even half asleep she could find her way from her room to the bathroom. The door to her room was usually open a crack, and the nightlight in the hallway made it light enough to get to the bathroom past the telephone stand.

One night, as she passed the telephone stand on her way to the bathroom, Anina heard something that sounded like a quiet hissing. But, because she was half asleep, she didn't really pay any attention to it. Anyway, it came from pretty far away. Not until she was on her way back to her room did she see where it came from. Under the telephone stand there was a large pile of old newspapers and magazines, and this pile now began to move. That was where the noise was coming from. All of a sudden the pile started to fall over – right, left, forwards, backwards – then there were newspapers and magazines all over the floor.



Anina could not believe her eyes as she watched a grunting and snorting crocodile come out from under the telephone stand.

Anina was frozen to the spot. Her eyes wide as saucers, she watched the crocodile crawl completely out of the newspapers and slowly look around the apartment. It seemed to have just come out of the water because its whole body was dripping wet. Wherever the crocodile stepped, the carpet under it became drenched.

Reading passage continued on the next page.

PIRLS Released Test Question

Figure A-3. Example of item at PIRLS intermediate international benchmark: 2006

1 Point: Full-credit sample response

5. Put the following sentences in the order in which they happened in the story.

The first one has been done for you.

2 Anina saw the crocodile.

4 The crocodile ate two flamingos.

5 Anina tried to explain the broken door to her parents.

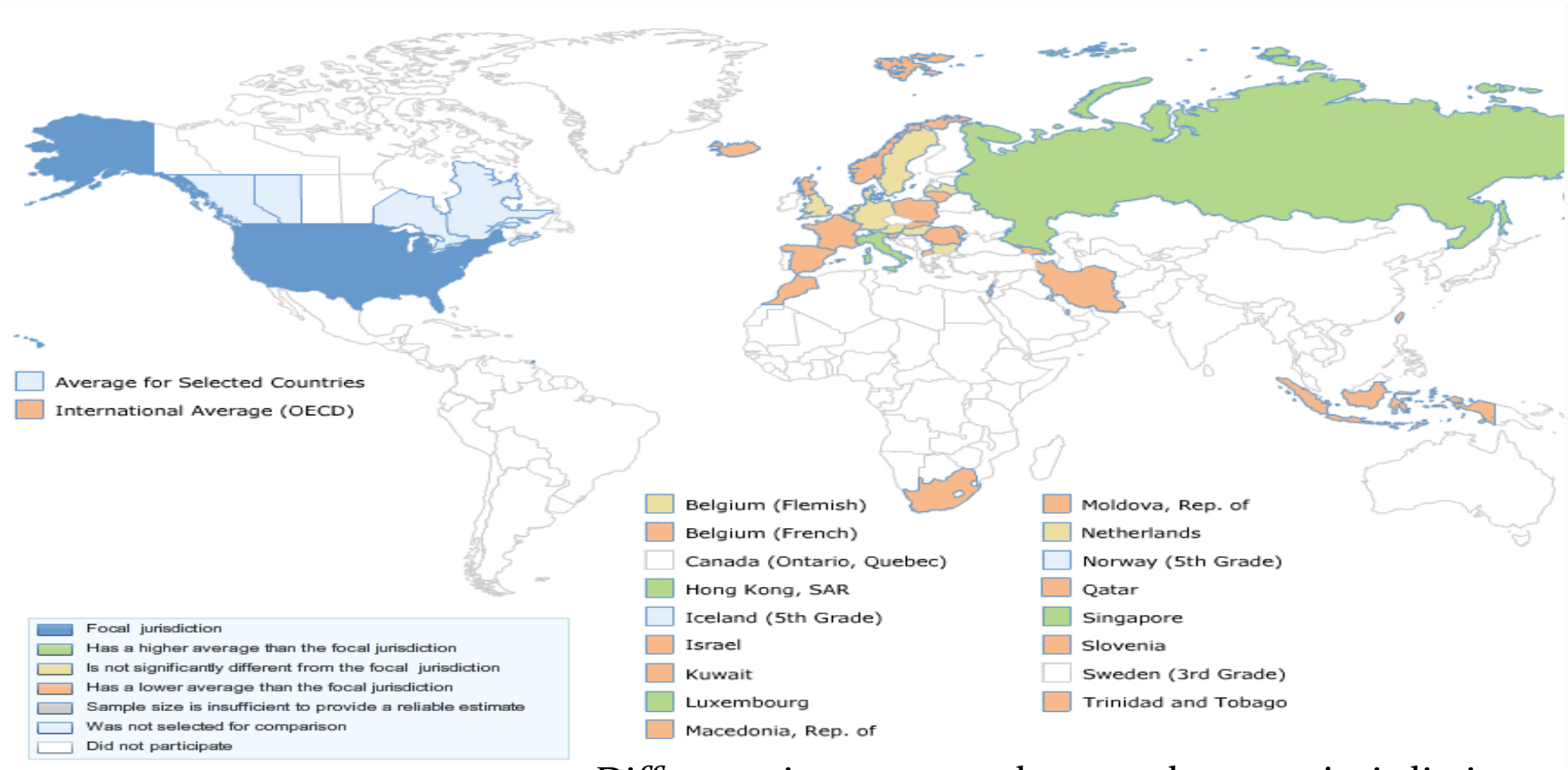
1 Anina started to walk to the bathroom.

3 Anina ran to the bedroom and slammed the door.

	Percentage of students earning full-credit
International average	67
United States	79*

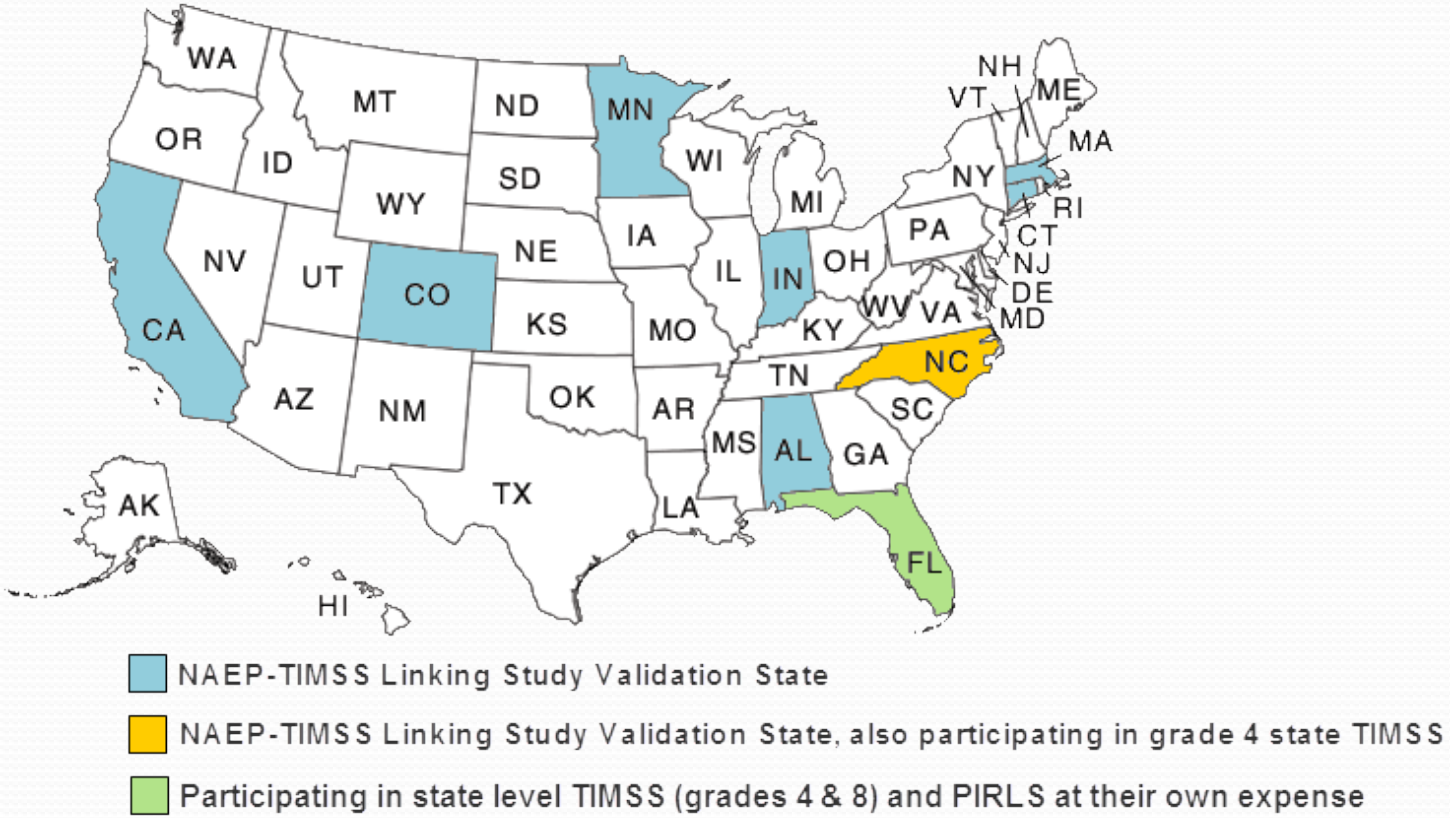
*$p < .05$. Significantly different from international average at the .05 level of statistical significance.
SOURCE: International Association for the Evaluation of Educational Achievement, Progress in International Reading Literacy Study (PIRLS), 2006.

PIRLS Grade 4 Reading, 2006
Student Owns Books



Difference in average scale scores between jurisdictions

TIMSS and PIRLS Participation



PISA

- 15-year-old students are assessed in reading, mathematics, and scientific literacy every 3 years since 2000
- One subject assessed in depth at each administration (mathematics in 2012)
- Measures how well students can apply knowledge and skills to problems within real-life contexts as they approach the end of compulsory education rather than a direct measure of attained curriculum knowledge

PISA

- Compares achievement of American students to that of students in more than 60 countries and jurisdictions
- Two different types of samples – National and State (Florida has 10 schools in national sample and 53 schools in state sample)
- Westat staff will administer PISA, just as they do NAEP
- 3 states will receive state-level data: CT, **FL**, MA
- PISA results will be available Spring 2014

PISA Content Compared with NAEP: Mathematics

	NAEP (grade 8)	PISA
Similarities	Similar content and cognitive dimensions of mathematics	
Differences	More emphasis on algebra Two-thirds multiple-choice/one-third open-ended questions	More emphasis on data analysis and probability One-third multiple-choice/two-thirds open-ended questions More questions calling for multi-step reasoning

PISA Content Compared with NAEP: Science

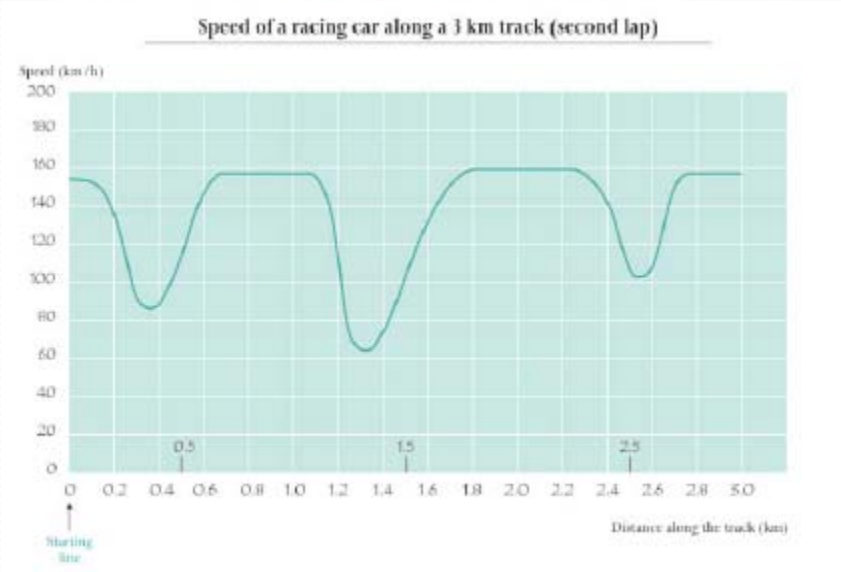
	NAEP	PISA
Similarities	Concept of science literacy Content in the fields of science (Life, Physical, and Earth)	
Differences	School-based, focus on conceptual understanding	Uses "real-world" contexts (personal, societal), more focus on application More multiple-choice questions

PISA Content Compared with NAEP: Reading

	NAEP	PISA
Similarities	Reading as a constructive process Similar cognitive skills measured	
Differences	Longer passages, more questions per passage	Shorter passages, fewer questions per passage
	More emphasis on critiquing and evaluating	More emphasis on locating information
	Measuring vocabulary	
	More multiple-choice items	More short, open-ended items

PISA Released Mathematics Test Item

Question 1: SPEED OF A RACING CAR



What is the approximate distance from the starting line to the beginning of the longest straight section of the track?

A 0.5 km.

B 1.5 km.

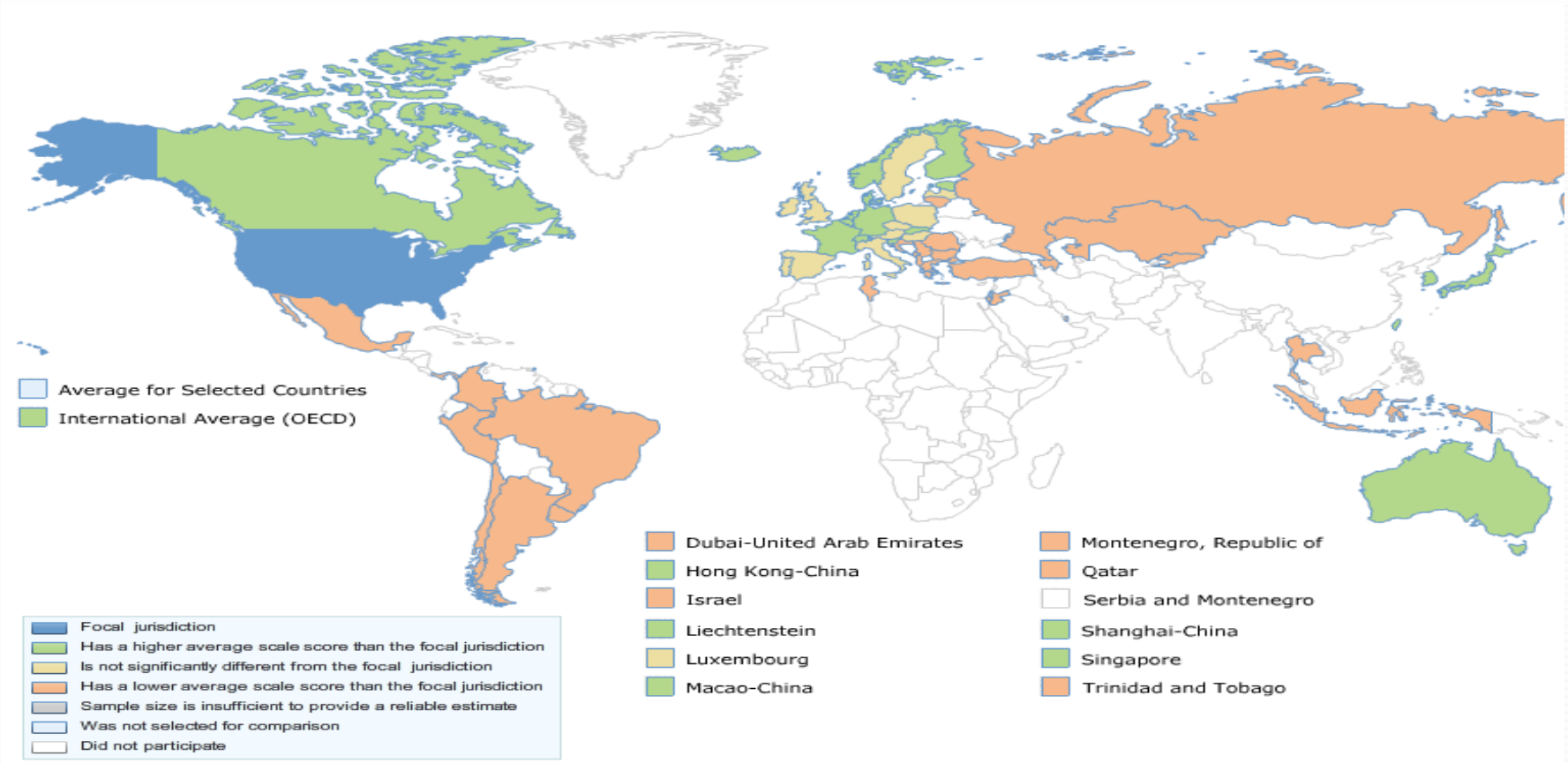
C 2.3 km.

D 2.6 km.

Overall Percent Correct

Iceland	84	▲
Japan	83	▲
France	82	▲
Finland	82	▲
Liechtenstein	77	○
Korea, Republic of	77	▲
Australia	76	▲
United Kingdom	75	▲
New Zealand	74	○
Canada	73	▲
Czech Republic	73	○
Russian Federation	73	○
Norway	72	○
Belgium	72	○
Sweden	71	○
Denmark	70	○
Latvia	70	○
Austria	70	○
OECD average	**69**	
Switzerland	68	○
Spain	68	○
Ireland	67	○
Germany	66	○
Luxembourg	66	○
Portugal	63	○
United States	63	○

PISA Mathematics, 2009
Possess a Calculator



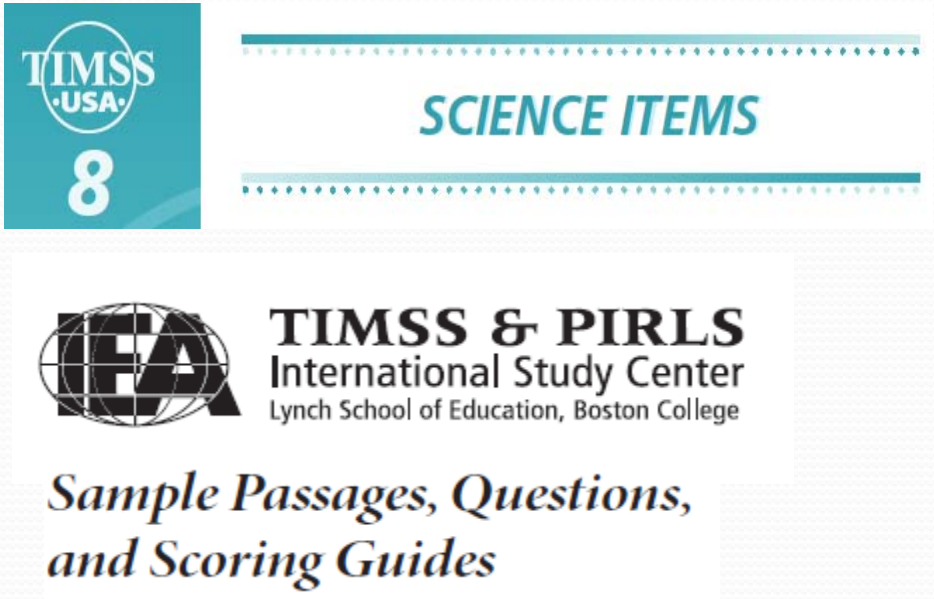
Difference in average scale scores between jurisdictions

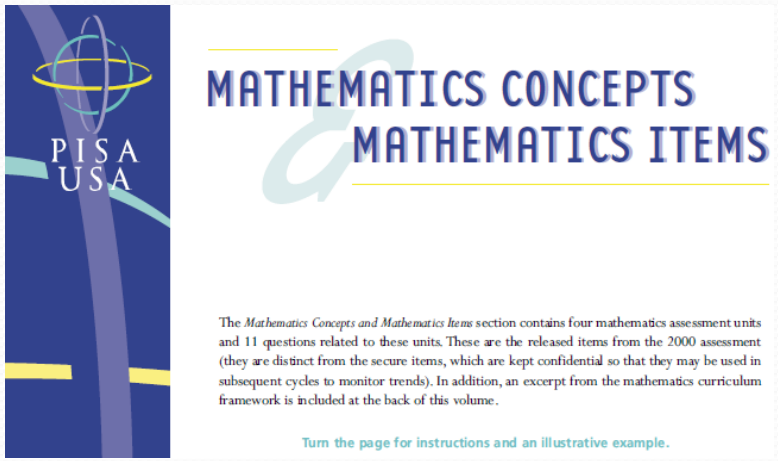
International Assessments

TIMSS – http://nces.ed.gov/timss/

PIRLS – http://nces.ed.gov/surveys/pirls/

PISA – http://nces.ed.gov/surveys/pisa/





International Data Explorer

http://nces.ed.gov/surveys/international/ide

- Analyzes TIMSS, PIRLS, and PISA data
- Creates statistical tables and graphs
- Compares the performance of the United States with that of the other participating jurisdictions

Florida's International Assessments Website

http://www.fldoe.org/asp/naep/iah.asp

Overview
International Assessments in Florida
Comparison of International Assessments

PISA
Template Letter for Schools to Use to Notify Parents/Guardians in English, Spanish, and Haitian-Creole

Social Networking Websites

NAEP

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

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Questions?

- International Assessments
- NAEP – January 28 – March 8, 2013

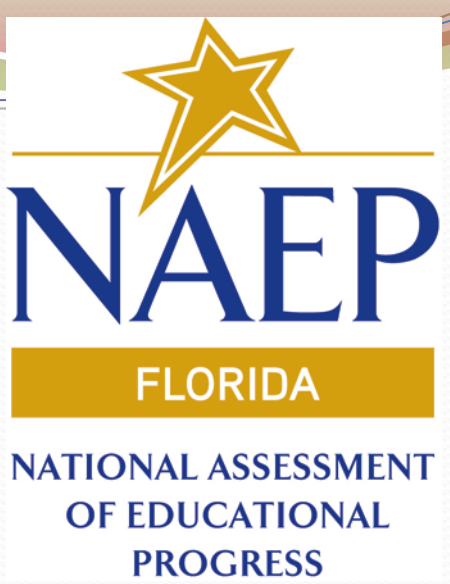
Sample Size

	Target Sample Size
Grade 4* (paper and pencil)	63
Grade 8** (paper and pencil)	63
Grade 8 (Technology and Engineering Literacy)	30
Grade 9 (paper and pencil)	20
Grade 10 (paper and pencil)	30
Grade 11 (paper and pencil)	30
Grade 12 ***(paper and pencil)	60

*If a school has between 64 and 90 grade 4 students, the school can choose to have all the students assessed.

**Some schools in Miami-Dade and Hillsborough Counties will have larger samples.

***All grade 12 schools will also assess students in grades 9, 10, and 11.



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