



TIMSS 2015— 20 Years of Trend Data

**TIMSS
2015**

Every four years since 1995, *TIMSS* has reported on international trends in mathematics and science achievement at the fourth and eighth grades. *TIMSS 2015* will be the sixth assessment,

resulting in a 20-year trend line. Because *TIMSS* monitors changes in achievement at regular intervals, it is a valuable vehicle for studying whether new or revised educational policies impact achievement. Fully 63 countries participated in *TIMSS 2011*.

The *TIMSS* mathematics and science assessments are based on comprehensive assessment frameworks developed collaboratively with the participating countries. The frameworks specify in some detail the knowledge, skills, and understandings to be assessed.

TIMSS reports overall mathematics and science achievement. In addition, results are provided according to four International Benchmarks (advanced, high, medium, and low) and by major content domains (for example, algebra, geometry, biology). Countries also obtain item-by-item results for diagnostic purposes for approximately 200 items per subject per grade (e.g., fourth grade mathematics, eighth grade science).

A major purpose of *TIMSS* is to provide important background information that can be used to improve teaching and learning in mathematics and science. For example, *TIMSS* collects detailed information about curriculum and curriculum implementation, instructional practices, and school resources.

TIMSS Advanced 2015— Measuring Excellence

**TIMSS
Advanced
2015**

TIMSS Advanced measures trends in advanced mathematics and physics for students in their final year of secondary school (twelfth grade in most countries).

The assessment provides educational policy makers with valuable information about how many students are excelling at highly specialized material in a global context.

TIMSS Advanced assesses students enrolled in pre-university courses designed to lead into science and technologically-oriented programs and careers. The *TIMSS Advanced* assessment framework covers algebra, calculus, and geometry in advanced mathematics. In physics, it covers mechanics, electricity/magnetism, heat/temperature, and atomic/nuclear physics. *TIMSS Advanced* also collects extensive policy-relevant data about curriculum emphasis, technology use, and teacher preparation and training.

TIMSS Advanced was originally assessed together with *TIMSS* in 1995 to provide countries with a comprehensive picture of their mathematics and science education across primary, middle, and upper secondary schools. However, *TIMSS Advanced* was not assessed again until 2008, when a number of countries expressed interest in an advanced assessment due to the strong link between specialized scientific expertise and economic productivity. In 2015, *TIMSS Advanced* will be reunited with *TIMSS* so that countries can gain a better understanding of how one level of education influences the next.

Schedule Highlights

2013—February

Update Frameworks
for 2015 at 1st Meeting
of National Research
Coordinators

2014—March

Field Test
TIMSS 2015
assessment
instruments

2014—October

Data Collection
Southern
Hemisphere

2015—April

Data Collection
Northern
Hemisphere

2016—December

Data Release



Trends in International
Mathematics and Science
Study



TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College



TIMSS and TIMSS Advanced are renowned international assessments that have been monitoring changes in educational achievement in mathematics and science since 1995. Countries use TIMSS and TIMSS Advanced for educational improvement by evaluating the effectiveness of their mathematics and science teaching and learning in comparison to other countries around the world.



TIMSS and TIMSS Advanced are projects of IEA (International Association for the Evaluation of Educational Achievement). Headquartered in Amsterdam,

IEA has been conducting international comparative studies of student educational achievement since 1959. IEA pioneered studies relating cross-national achievement to the different methods for teaching and learning used across the globe so that countries may learn about effective educational approaches from each other.



TIMSS and TIMSS Advanced are directed by the TIMSS & PIRLS International Study Center at Boston College. TIMSS together with PIRLS, which assesses reading, comprise IEA's core cycle

of studies designed to provide participating countries with regular information about achievement in three fundamental subjects—mathematics, science, and reading.



Benefits of Participating in TIMSS and TIMSS Advanced

Participation in *TIMSS* enables evidence-based decisions for educational improvement. High quality, internationally comparative data about student achievement in mathematics and science are important for monitoring and improving the health of a country's education system. Evidence of underperforming areas often spurs education reform, with subsequent assessments being effective monitors of changes in the educational system.

TIMSS and *TIMSS Advanced* results are disseminated through the *TIMSS International Reports* and via the web. A well-documented international database provides opportunities for research both within and across countries. Participating countries use the *TIMSS* and *TIMSS Advanced* assessment process and data to:

- *Monitor system-level achievement trends in a global context*
- *Establish achievement goals and standards for educational improvement*
- *Stimulate curriculum reform*
- *Improve teaching and learning through research and analysis of TIMSS data*
- *Conduct related studies, such as monitoring equity or assessing students in additional grades*
- *Train researchers and teachers in assessment and evaluation*

Benchmarking

TIMSS has a benchmarking component whereby regional entities (e.g., states or provinces) may participate in the same way as countries, and thus compare their achievement to top-performing countries around the world.



TIMSS and TIMSS Advanced Participation Options

Participating in *TIMSS* at both fourth and eighth grades as well as in *TIMSS Advanced* provides a comprehensive set of data at three important points across a country's educational system. However, it is possible to participate in *TIMSS* at two grades or only one grade, such as *TIMSS* at the fourth grade and *TIMSS Advanced*, or just *TIMSS* at the eighth grade. Also, in countries where *TIMSS* might be too difficult for fourth grade students, *TIMSS* can be given to students in the fifth or sixth grade, and similarly to ninth grade rather than eighth grade students.

For Country Enrollment, Contact:

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timss.bc.edu



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