

# TIMSS 2007 and the Need for Change

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The Trends in Mathematics and Science Study (TIMSS 2007) measured student performance against four international benchmarks: an advanced benchmark set at 625 on the TIMSS scale, a high benchmark set at 550, intermediate set at 475 and low set at 400. The TIMSS scale average was 500.

In Year 4 Mathematics, Australia's mean score was 516. Hong Kong topped the list of 36 countries with a mean score of 607. Singapore was in second place on 599. Nine per cent of Australian Year 4 students reached the advanced benchmark compared with 40 per cent in Hong Kong and 41 per cent in Singapore. At the other end of the scale, 9 per cent of Australian Year 4 students were below the low benchmark compared with 0 per cent in Hong Kong and 2 per cent in Singapore.

New South Wales was the best performed Australian state with 14 per cent of Year 4 students reaching the advanced benchmark. Victoria was second on 10 per cent.

In Year 8 Mathematics, Australia's mean score was 496. Chinese Taipei topped the list of 49 countries with a score of 598. Six per cent of Australian Year 8 students reached the advanced benchmark compared with 45 per cent of Chinese Taipei students. Eleven per cent of Australian students did not reach the low benchmark compared with 5 per cent in Chinese Taipei.

The ACT performed best within Australia with 12 per cent of its Year 8 students reaching the advanced benchmark compared with NSW in second place on 10 per cent and Victoria third on 5 per cent.

Whilst international benchmarks are only one way of measuring student performance, Australia's mediocre results against its global competitors on the TIMSS scale provide cause for concern.

Australia's Year 8 students performed poorly in Geometry and Algebra. This is hardly surprising given that only half of them were taught by teachers qualified in mathematics. The fact that their teachers believe themselves to be very well prepared to teach all topics in the subject is inconsistent with the results in TIMSS. This

suggests a level of overconfidence by many Year 8 teachers and points to the need for more targeted and subject specific professional development.

Most of Australia's Year 4 students are taught by Primary school teachers without any qualification or specialisation in mathematics. This needs to change. Whilst the textbook is the foundation of mathematics instruction in most countries in the TIMSS study, 25 per cent of Australia's Year 4 classes don't use a mathematics textbook. This must also change.

## Box

To be a teacher,  
you must fit  
the box.

To be extraordinary,  
you must escape  
the box.

## About the Author

Russell Boyle is an author, teacher and poet. He has a baccalaureate in pure mathematics and a master's degree in education. He commenced his teaching career at Braybrook High School in 1975. Four years later he transferred to Lilydale High School. Between 1983 and 1985 he taught at Mentone Boys' Grammar School, and moved to St. Paul's Anglican Grammar School in 1986, as head of mathematics. Russell returned to the public sector in 2001, as head of mathematics at Glen Waverley Secondary College. Since 2003 he has been dean of mathematics at Ruyton Girls' School. Russell has published three volumes of poetry, authored five web programming courses and two advanced course exams. His school performance tables were published by the Herald Sun between 2002 and 2006. Russell may be contacted through his website at [russellboyle.com](http://russellboyle.com)

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