

## MEDIA RELEASE

**For release: 02:00am (AEDST) Wednesday 10 December 2008**

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### *International mathematics and science study shows mixed results for Australia*

The latest results from the Trends in International Mathematics and Science Study (TIMSS) show that Australian Year 4 students have displayed some improvement in Mathematics achievement since 2003. But achievement levels of Australian students have remained static in Year 8 mathematics and Year 4 science and declined significantly in Year 8 science.

Results from the study involving 49 countries at Year 8 and 36 countries at Year 4 were released by the International Association for the Evaluation of Educational Achievement (IEA) in Boston overnight. Australia's national report was released simultaneously by the Australian Council for Educational Research (ACER).

Internationally, Asian nations lead the way with the Russian Federation and Slovenia among those making big improvements since the last administration of TIMSS in 2003.

In Australia, a nationally representative sample of around 4000 Year 4 students from 229 primary schools and 4000 Year 8 students from 228 secondary schools took part in the TIMSS assessments in late 2006.

In Year 4, Australian students performed above the international TIMSS scale average in both Mathematics and Science. At Year 8, Australian students performed above the international scale average for Science and were on par with the international scale average for Mathematics.

"These results show that, overall, Australia is doing a very good job at educating students to an average standard," said ACER's chief executive Professor Geoff Masters.

"However, we need to ask ourselves, in an increasingly competitive global economy, is average good enough?"

He noted that the proportion of Australian students achieving results at the advanced international benchmarks set for TIMSS falls well short of the numbers of students in leading Asian nations reaching the top levels. For example, at Year 4 mathematics, nine per cent of Australian students achieved the advanced international benchmark compared to 41 per cent in Singapore and 40 per cent in Hong Kong.

Professor Masters said that while Australia's TIMSS results suggest an overall maintenance of our performance over time, this is in a context where other countries, including England and the United States, have made big improvements.

Key findings from TIMSS 2007 from Australia's perspective include:

- **Year 4 mathematics** - Australian students' average scores in Year 4 mathematics have increased significantly by 17 points since 2003. In terms of relative position internationally, Australia was again outperformed by all of the Asian countries as well as England and the United States – a similar position to that obtained in 2003.

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- **Year 8 mathematics** - The result for Australia is similar to 2003 but achievement scores have decreased since the first administration of TIMSS in 1995. Increases in scores achieved by students from England, the United States and Lithuania, in combination with a decrease in Australia's score, resulted in those countries significantly outperforming Australia in 2007. Overall, Australian students performed poorly in the areas of geometry and algebra.
- **Year 4 science** – Australia's performance has remained relatively unchanged since the first administration of TIMSS in 1995. Australia's relative position compared to other countries is much the same in 2007 as it was in 2003.
- **Year 8 science** - Australia's average score has declined by 12 score points since TIMSS 2003. This combined with significant improvements by the Russian Federation and Slovenia has moved Australia a little downwards in relative terms.
- **Indigenous students** - Once again the results of an international study highlight that little has changed in regard to educational outcomes for Indigenous students. At Year 4 the average score for Indigenous students in both mathematics and science was around 90 score points lower than that of their non-Indigenous counterparts. This gap has actually increased over time. Similar results were found at Year 8.
- **Gender** – In Australia, boys generally outperformed girls at both Mathematics and Science at each year level. This is in contrast to the international trend for girls to outperform boys.

Professor Masters called for urgent reform of primary and junior secondary science curriculum and teaching in light of the findings.

“At primary school level we need to find ways to increase the amount of science expertise available in schools, increase the small amount of time given to the teaching of science and implement curricula that enable classroom teachers to highlight the science of the phenomena that students encounter in their lives,” Professor Masters said.

“There are issues in junior secondary science, particularly in the areas of physics and chemistry, which are highlighted by the poor average performance of Australian students.

“Attention to the teaching of mathematics in the junior secondary also deserves attention, particularly in the areas of algebra and geometry where Australian students performed quite poorly.”

TIMSS 2007 is the fourth in a cycle of internationally comparative assessments conducted under the aegis of the International Association for the Evaluation of Educational Achievement (IEA). Carried out every four years, TIMSS provides data about trends in mathematics and science achievement over time. In Australia, TIMSS is part of MCEETYA's National Assessment Program.

The report, (*TIMSS 2007: Taking a closer look at mathematics and science in Australia* by Sue Thomson, Nicole Wernert, Catherine Underwood and Marina Nicholas), is available for download from the ACER website at [www.acer.edu.au/timss2007](http://www.acer.edu.au/timss2007)

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Media enquiries:

Louise Reynolds -Corporate Publicity & Communications Manager  
(03) 9277 5582 or 0419 340 058  
Email: reynolds@acer.edu.au