

PISA and TIMSS

What's the story?

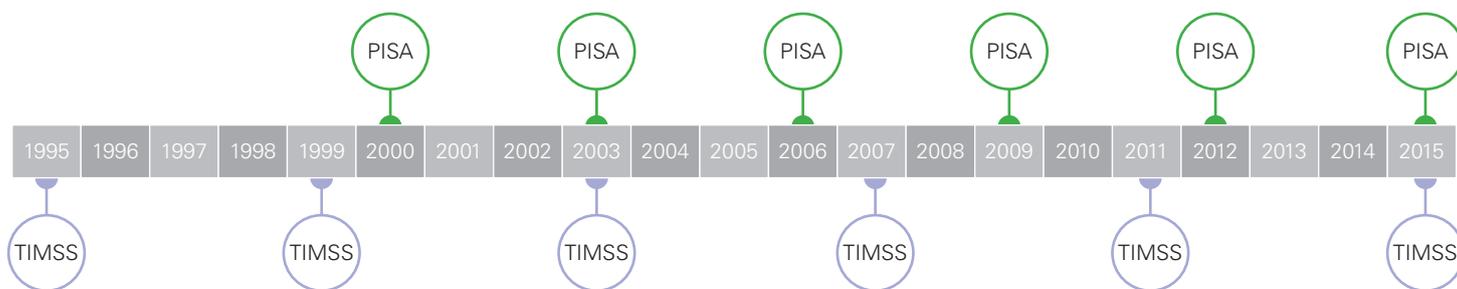
As part of the monitoring of the progress of Australian students, nationally representative samples of students are tested regularly in the types of skills that are essential for every child to progress through school and life: reading, mathematics and science.

Every three years, a sample of Australian students is tested in the **Programme for International Student Assessment (PISA)**, which examines scientific, reading and mathematical literacy levels.

Every four years, samples of students undertake the **Trends in International Mathematics and Science Study (TIMSS)**, which examines student achievement in mathematics and science.

Every 12 years, PISA and TIMSS align, in that their results are released more or less simultaneously, as is the case this year, when only a week separates the release of the two studies.

Timeline for PISA and TIMSS testing (Note: Results are reported in the following year)



PISA looks at 15-year-olds – who in most countries are approaching the end of compulsory schooling – and asks how well they are able to apply understandings and skills in science, reading and mathematics to everyday situations. For example, are they able to:

- read tables and graphs in newspapers?
- perform currency conversions?
- use basic understandings of science to make sense of magazine articles about topics such as genetically modified foods and animal cloning?

PISA is an initiative of the Organisation for Economic Cooperation and Development (OECD).

TIMSS, on the other hand, looks at how well Year 4 and Year 8 students have mastered the factual and procedural knowledge taught in school mathematics and science curricula. For example, do students know:

- how many legs an insect has?
- which animals lay eggs?
- what happens when light passes through a prism?
- what the angles of a triangle sum to?
- how to convert $\frac{7}{10}$ to a decimal?
- what congruent triangles are?

TIMSS is an initiative of the International Association for the Evaluation of Educational Achievement (IEA).

The Australian Council for Educational Research (ACER) manages the implementation and reporting of PISA and TIMSS in Australia on behalf of the OECD and IEA, with funding from the Commonwealth and state and territory governments.

PISA and TIMSS allow students' performances to be compared across countries and over time. So what is similar about the two studies, what's different, and what can we learn from each?

PISA and TIMSS comparison table:

	PISA	TIMSS	
Areas assessed	Scientific literacy Reading literacy Mathematical literacy	Mathematics Science	
Target population	All 15-year-old students regardless of year level – typically this is Year 10, but participating Australian students may be in Years 9 or 11, due to differing school starting ages	Year 4 students	Year 8 students
Focus of assessment	How well students are able to apply understanding and skills in science, reading and mathematics to everyday situations	How well students have mastered the factual and procedural knowledge taught in school mathematics and science curricula	
Australian data collection	July–September 2015	November/December 2014	

While PISA and TIMSS have much in common, they provide different, but complementary, information about different aspects of students' mathematics and science learning. In both studies there are carefully developed assessment frameworks that define what is assessed. The tests are sound, reliable instruments that measure accurately what they were designed to measure.

Can the scores of PISA and TIMSS be compared directly?

No. Although achievement in PISA and both TIMSS Year 4 and Year 8 are described on a scale in which 500 represents the international average, each scale is based on a different group of participating countries.

- ➔ The international average for PISA is the average of the OECD member countries participating in PISA, which comprise around half of the total number of participating countries.
- ➔ The international average for TIMSS is the average of all participating countries, including developing countries. The scores for Year 4 and Year 8 in TIMSS cannot be compared because not all countries test both year levels.

