



BLUEPRINT

**Supporting best teaching
of mathematics
for Indigenous learners**

The Australian Association of Mathematics Teachers Inc.

GPO Box 1729, Adelaide SA 5001 | 80 Payneham Road, Stepney SA 5069

T 08 8363 0288 | F 08 8362 9288 | E office@aamt.edu.au | www.aamt.edu.au



Introduction

Many Indigenous students are not reaching their potential in mathematics at school and subsequently in life beyond school. This must be changed. More and better targeted effort is required. Educators at all levels need to understand that all children can learn mathematics, and that ability is not fixed by race, class, gender or geographical location. They need to understand quality mathematics pedagogy and how it impacts upon Indigenous students.

The Australian Association of Mathematics Teachers (AAMT) Inc. rejects the notion of 'fixing problems' in favour of a positive approach to building capacity and improving outcomes. This Blueprint outlines AAMT's recommended pathway for the future in relation to Indigenous students and mathematics.

Indigenous students and mathematics

Recognition of the performance gap in mathematics between Indigenous young people and their non-Indigenous peers has generated research that has identified some approaches which are proving to be effective in improving mathematics outcomes for Indigenous students in particular settings. Some of these are:

- establishing a classroom environment that is predictable for students;
- working with integrated curriculum in which there is a clear focus on mathematics development;
- students learning in groups;
- cross-age tutoring in which older students are cast in the familiar role of helping educate younger children; and
- 'dialogic' teaching in which educators have a dialogue with students, and build narratives about and with mathematics.

But there is no single answer: the challenge for Australian education is to make successful strategies widely known and used by teachers and schools around the country. Other factors that need to be put in place to support Indigenous students' learning and achievement in mathematics include:

- ensuring that all Indigenous students – whether they are in remote, rural, regional or urban locations – have access to the full Australian mathematics curriculum that can lead to further study in mathematics, science and engineering;
- that all teachers – especially those who are isolated – have access to quality support and networking; and
- avoiding the use of assessment tools that are culturally inappropriate for the students.

Achieving the sorts of improvements needed requires a coordinated approach.

A coordinated approach – a coherent, coordinated and connected National Network

The emphasis on literacy continues to sideline mathematics in policy and programs at all levels. Establishing the *National Network for Mathematics Learning of Indigenous Young People* (the Network) will raise the profile of mathematics and numeracy education for Indigenous learners and ensure much greater attention to numeracy teaching and learning. For maximum impact, the Network must bring together representatives from the teaching profession, universities, government, and business and industry to coordinate effort and further develop this Blueprint into action. It must be guided by a strategic plan and a research agenda.

A strategic plan

The Network will develop and monitor a strategic plan to improve the quality of teaching mathematics to Indigenous students and reflect the Aboriginal and Torres Strait Islander Education Plan. The plan will focus on the development and dissemination of evidence based approaches rather than the ‘grab bag’ of unconnected, unsustainable ideas that characterise some current efforts in the area.

A systematic research agenda

The Network will design a research agenda to support further development of mathematics and numeracy education for Indigenous students. This research agenda will:

- review and report on the current status of research on Indigenous learners in mathematics;
- identify and set priorities for research;
- develop protocols and practices for research in mathematics for Indigenous students.

It will need to be well supported by governments, systems, practitioners, and community organisations over the long term. Sharing of findings needs to occur in ways that are accessible to all and unable to be ignored.

Partnerships – the only way forward

The Network’s agenda will recognise that a coordinated and rigorous way forward must be driven by comprehensive, powerful partnerships at two levels:

- **School, parent, family and community.** These partnerships must be learning oriented to ensure academic inclusion and success of all Indigenous students. Two-way learning between the community and school is foundational to these partnerships.
- **Effective professional learning communities of educators.** Working together will enable hard questions to be asked and answered in an environment that supports people to make profound change in what they think, say and, most importantly, do.

In the period 2013 to 2016 AAMT and its Affiliates will:

1. Form partnerships that enable and promote a sustained focus on the mathematics learning of Indigenous students.
2. Form and foster professional learning communities. Part of the work of these communities will be to identify issues in remote, rural, regional and urban education settings, both those that are common and different.
3. Build on the work already begun by the AAMT including:
 - a. The development of leaders working at the intersection of Indigenous education and mathematics education.
 - b. Investigating creative and innovative approaches to community, family and parent engagement with mathematics education.
 - c. Attracting people to the work that needs to be done.
4. Provide professional learning opportunities for leaders, teachers, Indigenous educators and education assistants.

In the period 2013 to 2016 AAMT recommends that governments, universities, business and industry, and community organisations work with AAMT to:

- Form the *National Network for Mathematics Learning of Indigenous Young People* that establishes and drives state and regional networks.
- Investigate how national initiatives such as Dare to Lead, Stronger Smarter and What Works can adopt a focus on mathematics education for Indigenous students.
- Support the development of responsive pedagogy in mathematics.
- Review the extent to which teacher education programs support graduates to develop knowledge and skills in teaching mathematics to Indigenous students.
- Develop leaders who work at the intersection of Indigenous education and mathematics education. This includes creating leadership positions for school based Indigenous educators.
- Review and develop improved policy and approaches to cultural competency and mathematics.

Enquiries

CATY MORRIS

National Manager: Indigenous Programs

M 0432 277 654 | E cmorris@aamt.edu.au

This Blueprint has been prepared by the AAMT for leaders in Indigenous education and mathematics and numeracy education in Australian schools, regions, systems, and State and Federal Governments. It provides a brief summary of the contemporary context and important directions for improving the learning outcomes of Australia's Indigenous students in numeracy and mathematics. Many of the ideas come from the AAMT Special Interest Conference *Numeracy, Mathematics and Aboriginal and Torres Strait Islander learners* held in Adelaide late in 2012.