Australian Government
Department of Education, Science and Training

What Works. The Work Program: CORE ISSUES 4

What Works. The Work Program is a set of resources designed to help schools and those who work in them improve outcomes for Indigenous students. The 'Core issues' series is an attempt to distil some topic-based key directions for practical action.

Numeracy

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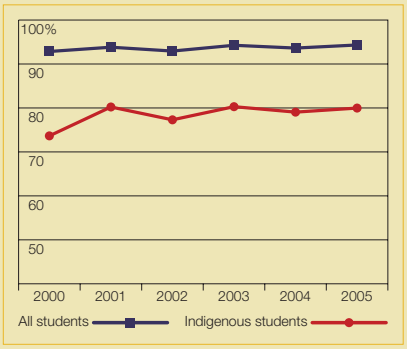
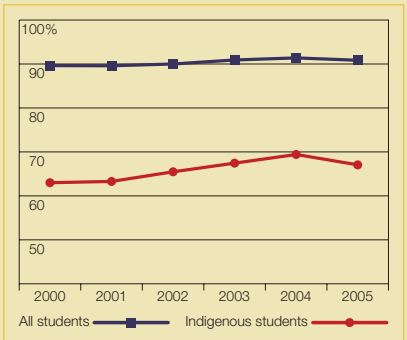
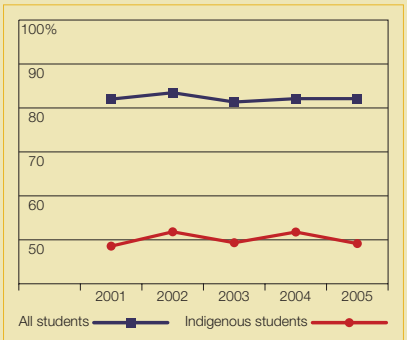
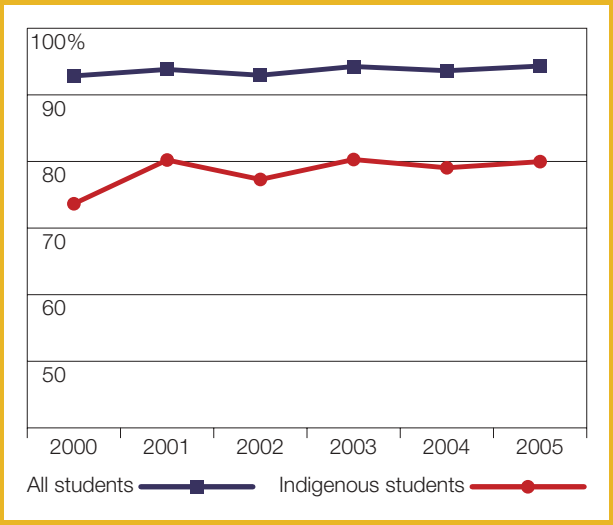




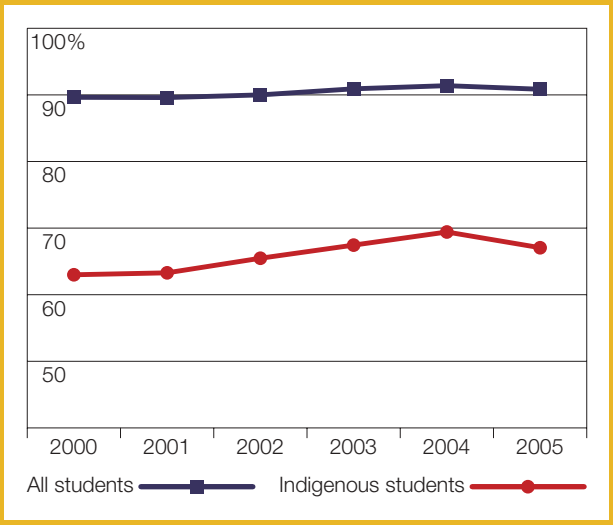


What do we know about the performance of Indigenous students in numeracy? What is numeracy anyway? How is it defined, and why is it important? What sorts of teaching strategies are likely to be effective with Indigenous students? What resources have proven value?

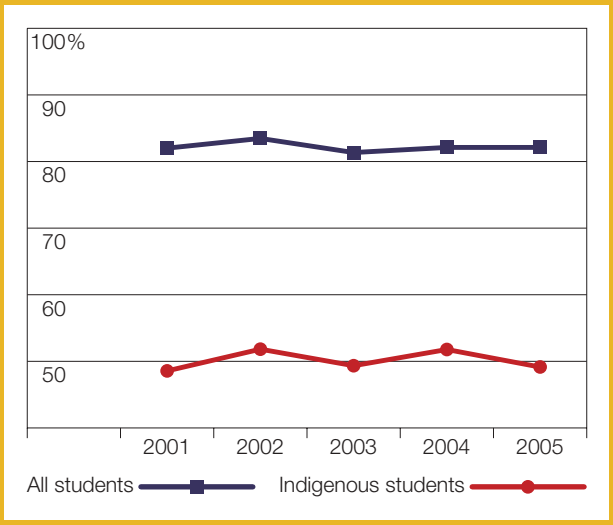
These are some of the questions tackled in this paper.



Percentage of Year 3 students achieving the numeracy benchmarks, 2000–04



Percentage of Year 5 students achieving the numeracy benchmarks, 2000–04



Percentage of Year 7 students achieving the numeracy benchmarks, 2000–04

Source: MCEETYA, n.d. (2007)

The numeracy performance of Indigenous students

These tables contain three pieces of information relevant to this discussion.

The first is that the widely recognised and discussed 'gap' is visible in the results of numeracy testing (those which are publicly available, i.e. 2000–05), just as it is in the results of testing aspects of literacy. It is substantial and significant.

The second is that the news is not unequivocally bad. The trend line in numeracy performance for Year 3 students over this period is up, if only modestly. For this group, in 2000 the gap between the performance of all students and that of Indigenous students was nearly 20 percent. In 2005 it was 14 percent. Despite a downturn in 2005, the Year 5 results show a trend line that demonstrates a consistent improvement of 2 percent per year from 2001 to 2004. The Year 7 results for Indigenous students are static. As the MCEETYA Report in which these data are contained states: 'the percentage of students achieving the benchmark has been quite stable over time'.

The third piece of information is more disquieting. According to these test results, the level of numeracy achievement for the whole student population at Years 3 and 5 is reasonably consistent (in 2005, 94 and 91 percent respectively of the cohort achieved the benchmarks) with a decline at Year 7 in 2005 to 82 percent (which may be an artefact of testing and/or marking procedures).

However for Indigenous students, the 'gap' in 2005 at Year 3 is 14 percent, at Year 5 it is 24 percent, and at Year 7 it is 33 percent. These are not results for the same group of students, and it may be that in four years time the gap at Year 7 is the same or less as it is currently at Year 3. However that is an optimistic construction. A more realistic view is that the performance of Indigenous students in numeracy relative to that of the rest of the school population declines as the period of time spent at school increases. That is a cause for considerable concern.

How we might do better for Indigenous students across the board is the topic of this paper.

Defining numeracy

Literacy and numeracy are almost inevitably grouped together as the twin foundations of school education, the essential academic knowledge and competencies to be developed by schools for students' participation in contemporary society.

However, in terms of public attention, numeracy has frequently been the poor cousin of literacy. In fact, as it has become common to use the term 'literacy' to mean 'competence with' (as in technological literacy, information literacy, and so on), numeracy itself has sometimes been subsumed as a 'literacy' (quantitative literacy for example). That process has not always been helpful for those seeking to draw attention to the significance and the challenge of developing numeracy in young people.

One of the issues is that while being literate is, even without thinking, the ability to read and write, the connotations of being numerate don't spring as readily to mind. Is it distinct from mathematics, for example? And if so, how?

For people who work in the field this is an old discussion. In the Australian context, Sue Willis defined being numerate as being able 'to function effectively mathematically in one's everyday life, at home and at work' nearly 20 years ago (1990: vii). The concept of numeracy was thoroughly rehearsed at a landmark conference conducted in 1997 by the Education Department of Western Australia and the Australian Association of Mathematics Teachers and funded by the Australian Government. The proceedings of this conference (published as *Numeracy=everyone's business*) adopted the following definition of numeracy.

> *To be numerate is to use mathematics effectively to meet the general demands of life at home, in paid work, and for participation in community and civic life.* (AAMT, 1997: 10)

This document notes that numeracy must encompass all the key concepts and skills of mathematics like, for example, possession of sufficient command of mathematical expressions, representations and technology to interpret information in which mathematics is used and to be able to communicate mathematically to a range of audiences. But it also suggests that:

> *numeracy is a fundamental component of learning, discourse and critique* ***across all areas of the curriculum****. It involves the disposition to use, in context, a combination of:*
>
> - *underpinning mathematical concepts and skills from across the discipline (numerical, spatial, graphical, statistical and algebraic);*
> - *mathematical thinking and strategies;*
> - *general thinking skills; and*
> - *grounded appreciation of context.* (ibid.: 10, highlight inserted).

The idea of numeracy being 'fundamental… across all areas of the curriculum' (as highlighted above) reflects research showing that many students do not easily appreciate the numerous and very diverse ways in which their mathematical understandings and skills might, and must, be applied in daily life.

The definition clearly indicates the high level of significance that numeracy competencies have for being able to live comfortably and successfully in contemporary society. This applies to all students, but it applies especially to students whose backgrounds are disadvantaged and the group under consideration in this paper — Indigenous students. It also has implications, considered further below, for the ways in which schools and teachers should teach for the development of numeracy.

Since that conference the Australian Government has made a significant investment in research and development related to the acquisition of numeracy. This was signalled in the position paper *Numeracy, A Priority for All: Challenges for Australian schools* (DETYA, 2000). Four national and eight state/territory-based projects were conducted under this programme, the results can be reviewed in *Numeracy Research and Development Initiative 2001–2004: An overview of the numeracy projects* (DEST, 2005; see references for web access).

One of these projects, *Numeracy across the curriculum*, conducted by Murdoch University, provides a useful expansion of requirements for numeracy. Its findings indicate that being numerate requires a blend of mathematical, contextual and strategic know-how.

- *Mathematical know-how* involves knowing, understanding and using the mathematical ideas which typically comprise the school mathematics curriculum in measurement, number, space, algebra, and chance and data.
- *Contextual know-how* involves understanding the contextual features of the mathematics in the situation; that is, what terms mean in the context and what interpretations make sense. This requires more than a familiarity with the context. It requires an understanding of how the mathematics in the situation is shaped by the context.
- *Strategic know-how* involves the generally accepted mathematical problem-solving strategies: selecting key information and representing and organising it in models, diagrams and lists; breaking a task into component parts: or identifying and working on related problems or sub-problems and organising the approach in a systematic way. It may also involve making assumptions explicit to decide whether a particular procedure is appropriate, posing questions for oneself in order to come to grips with the essence of the task, and knowing to check that the solution makes sense in the context and fits the original specifications or constraints (DEST, 2005: 29).

These ideas also have clear implications for the way in which numeracy might be developed by teachers. The development of strategic know-how suggests the importance of explicit instruction in and practice of process, but much of the discussion of helping young Indigenous people to become literate concerns the way teachers develop their own contextual know-how, and also, perhaps more importantly, their know-that about the nature of the contexts in which their Indigenous students live and learn.

General strategies for increasing levels of success

The DEST report notes that while certain findings about effective numeracy development were specific to individual projects, others were common to many of the projects. These are described as follows:

- the use of hands-on materials to support the understanding and development of numeracy concepts; [It should be noted that seasoned teachers and consultants add a strong BUT to this point — but not at the expense of learning and understanding the core conceptual ideas of mathematics. Indigenous students need access to the hard stuff, not just the good time.]
- small group work to encourage discussion and exploration of ideas; [another BUT from the same group: but in the end competence comes from individual personal control of the ideas and tools of that way of working.]
- use of open-ended questions by both teachers and learners to establish, consolidate, extend, reinforce and reflect on concepts, skills and applications; [another BUT. Accelerated Literacy shows quite clearly that Indigenous learners who are behind will learn much more quickly and effectively by exchanging such questioning techniques for a much more directed and sophisticated style of teacher-student talk.]
- discussion during lessons to enable students to engage with and understand new and established mathematical concepts;

- catering for individual needs of students through differentiated teaching and learning; opportunities for interaction with the teacher, the support teacher or peers; and consistent and varied assessment;
- collaborative planning amongst teachers which provided opportunities for innovative teaching; and
- whole school commitment to numeracy with all teachers implementing policies and programmes consistently in all classrooms (ibid.: 11).

These broad principles will not be news to most teachers, but that should not diminish their impact or importance (nor their susceptibility to thoughtful criticism).

The *What's making the difference? project* conducted in the NT, reported that some schools are finding that Indigenous students learn better when they are presented with concrete visual stimuli, when instructions are verbal rather than written, and when they are able to manipulate resources and use games to establish and reinforce concepts (ibid.: 11). The national mapping project reports that successful numeracy learning for children in disadvantaged areas, a category into which many Indigenous students fall, occurs when:

- families and community members are involved in numeracy programmes;
- teachers' expectations of children are high;
- high expectations are conveyed clearly to parents and other significant community members;
- teaching is shaped by the results of teacher-student interviews, and
- open-ended learning tasks are used (ibid.: 11).

These findings are congruent with other relevant research. Tracey Frigo's comprehensive review of the available research (1999) suggests that teachers need to make themselves fully aware of the complexity of the cultural and social contexts in which their particular Aboriginal students learn mathematics. In particular, they need to:

- become aware fully of the complexity of the cultural and social contexts in which Aboriginal students learn mathematics and the ways in which these contexts employ numeracy;
- reflect on their practice and to identify and build on what works for their Aboriginal students; and
- reinforce the critical relationship between high expectations and a positive classroom climate to achieve higher levels of student achievement.

Frigo's review also suggests that effective teaching strategies for numeracy skill development in Indigenous students are ones that:

- equip teachers with a range of teaching strategies to reflect the diverse learning needs and ways of learning of their Indigenous students;
- provide a supportive environment in which Indigenous students feel confident as learners and risk-takers;
- recognise the significance language has in mathematics learning. It can be a very complex issue for Indigenous students given their diverse backgrounds and language needs;
- encourage the provision of positive, non-threatening, language-rich environments in mathematics classrooms; and
- support parents and communities in becoming or being further involved in their children's learning (op. cit.).

Distinctive aspects of practice successful with Indigenous students

In a case study on the *What Works* website, Pam Sherrard writes about her highly successful experiences in helping Years 3 and 4 Indigenous students in a remote town develop their mathematical skills and confidence with thinking and working numerically. The case study provides a concrete example of Frigo's principles with the added and significant edge of a determined effort to ensure success. This is an extract.

Each student needed much support to develop the language necessary to be able to make these generalisations about counting. But being able to make those generalisations was most empowering for them. Rather than believing counting by two was a process distinct from adding and subtracting two, the ability to see the relationships simplified the mathematics.

Often discussions about generalisations are reserved for more able students. In this program these discussions were used as a strategy to enable the students to become more able. Students who are 'naturally mathematically able' make these connections for themselves and therefore view maths as making sense. 'Less mathematically able' students do not see the interrelationships and view maths as a plethora of isolated number facts. 'Less mathematically able' students can be led to see these relationships through explicit teaching. However, if students do not have the necessary language and cannot make the generalisations for themselves, they are denied access to these ideas and maths does not make sense. They resort to rote learning, construe incorrect rules for themselves to try to make sense of the numbers, or give up trying to understand.

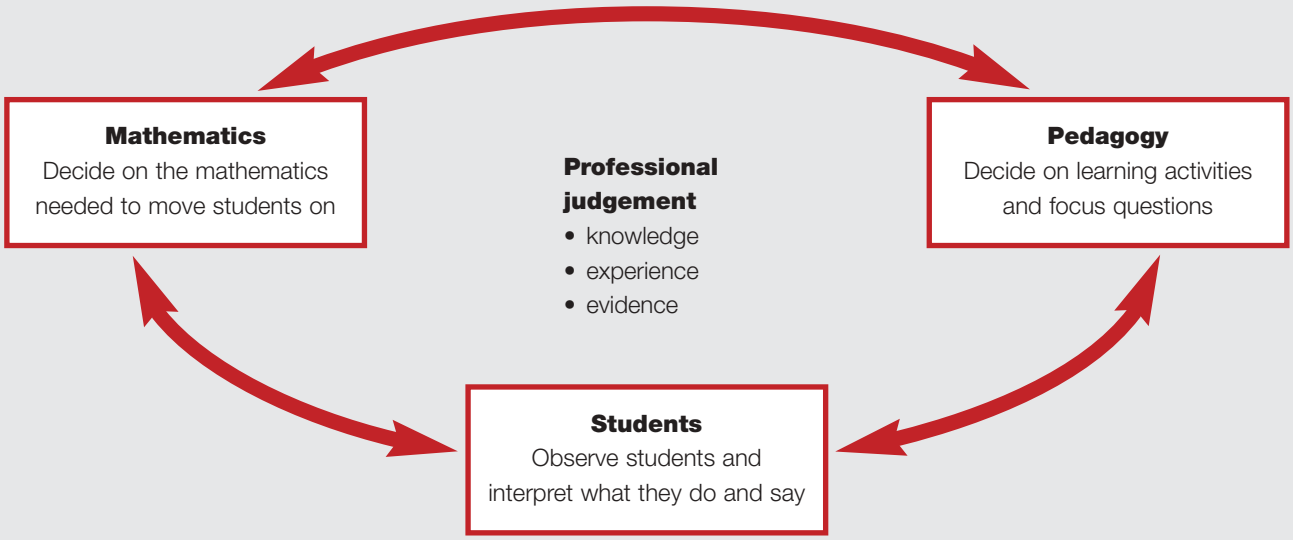
The language of mathematics, in particular number, is sometimes thought of as a list of synonyms for the four operations. This language is essential, confirming that literacy is necessary for numeracy, but it is not enough to compensate for lack of understanding. Literacy alone will not ensure numeracy. The word 'subtract', for example, can be taught to be synonymous with 'take', 'less' and 'minus'. However, this is not very helpful when a student is asked a question such as 'If you had $57 and your friend had $34, how much more would you have?' Without adequate understanding of the subtraction operation the key word 'more' would probably trigger the student to add the two numbers.

We broadened the normal language of mathematics to include the language needed to discuss ideas. Conversations about how a student arrived at an answer, alternate methods of calculating an answer and their efficiency, and whether an answer was possible or made sense were used to help students to understand that maths is about ideas and not just about 'getting answers to sums'.

The more complete version of this story (found at www.whatworks.edu.au/4_3_2a.htm) refers to most of the central issues which teachers confront in developing numeracy in challenging situations. Her students were all speakers of standard English as a second language or a second dialect. They had very little confidence in their mathematical ability and limited engagement in formal learning. New levels of confidence came with success built on:

- a keen awareness of the state of students' mathematical thinking, helped significantly in this and other ways through collaboration with an Indigenous aide;
- a clear idea about what she thought the students should be able to do and a high level of expectation that it would be reached;
- the development of relevant language skills; and
- a focus on 'real' rather than 'rote' maths.

The *First Steps in Maths* program (for additional information see below) adopts the view that teachers need to apply their professional judgement based on their own collegiate knowledge and experience and the available evidence to three areas: the mathematics to be taught, the teaching strategies to adopt, and the students they are working with.



Indigenous students need access to the same mathematics (as described in the various common prescriptions of curricula) and to the same level as any other group of students. Success in upper level mathematics is often used as the gateway to higher status further education and training; and, as has been mentioned, success in becoming numerate is often a crucial requirement for successfully negotiating the requirements of contemporary life.

General ideas about teaching strategies to adopt are included above: 'hands on' activities, pair and other small group work, the encouragement of lots of purposeful talk, and a strongly supportive climate are chief among them. But specific strategies which are particularly useful will vary with the group and with individual students.

Successful work with Indigenous students requires a focus on the students themselves and the contexts in which they are situated. In her valuable book *Improving Aboriginal Numeracy* (2003), Thelma Perso suggests that one the central questions teachers need to focus on is — What do we know about what Aboriginal children bring to the mathematics classroom? She also notes that this is a question without easy answers. This is a matter for sensitive and careful investigation.

Language and thought are very close relatives. They are both the products of experience. New ideas are best assimilated when they can be easily connected to past and current experience. These are straightforward notions which are at the heart of teaching practice. They can come unstuck, however, when unwarranted assumptions are made about the experiences which have formed the language and thought of students.

There are two of these unwarranted assumptions which should be explored.

The first is that Indigenous students are not good at maths. It is not unusual to hear comments from teachers that, while Indigenous students may be able to achieve in various KLAs, the development of numeracy and mathematical skills provides unusual levels of difficulty. *Low expectations are almost always met.* They are a formidable impediment to effective learning. The decisive aspect of the research which produced the *What Works* materials was that success occurs where teachers believe it will and act on that belief.

This is also a view which is sometimes shared by Indigenous students themselves. When she was working recently with a group of adult Indigenous students, Caty Morris notes: 'What also became apparent was the fear about mathematics and the many embarrassing experiences they had had while at school where students felt 'dumb', 'stupid', 'insignificant and isolated, and experienced very few feelings of success while engaged in learning mathematics'. She also notes that when they were introduced to the concept of numeracy, they very quickly and easily understood it. 'It was a lot easier to have a good conversation about numeracy (e.g., how we got to work today) than it was to have one about mathematics per se. But once there was a good understanding of what was meant by mathematics, participants were able to see mathematical issues and identify them very widely' (2005).

Teachers talk about 'achieving control' over mathematical thinking. Fundamental to achieving control is belief that it is possible and that what you are working with is not a mystery beyond your comprehension. Application to the numeracy implicit in real life situations which are familiar to students is one way of managing this which is widely and successfully employed.

The second of these assumptions, closely related, is that, however well this might be disguised, the students being taught will share the life experiences and background of the teacher and, hence, their basic conceptual structures relevant to learning.

In some circumstances this might, very broadly speaking, be the case. It is as hard to generalise about the lives of Indigenous students as it is about those of non-Indigenous students. The vast majority of Indigenous students live in urban settings in major cities or provincial towns. An increasing number have parents or care givers who have successful experiences in formal education and understand its demands. But this should never be assumed. Students who live in more remote areas may, but won't necessarily, have conceptual structures and linguistic understandings which are quite foreign to non-Indigenous staff.

Gwen Bucknell has a nice example of this process. In her article 'Building Bridges between Aboriginal and Western Mathematics', she tells the story of an Indigenous student asked this question.

Which of these numbers is less than 50?

63	81	97	35	52	74

'Without hesitation the student circled 35. Then, looking worried and with some reluctance, he circled 52.' The student explained his action by reference to the fact that the question asked about 'number**s**', plural. 'Therefore it must be a trick question!' (1995: 24).

The Maths Task Centre Materials (see below) quote from Beth Graham's seminal article 'Can We Count on Maths?'

> Maths, to be taught effectively in any community, has to begin where the children are, with the language and the knowledge to which their developing conceptual view of the world is related. It must move with the children as they develop mathematical concepts in relevant and meaningful situations which are organised for them in such a way that further mathematical ideas emerge.
>
> But how often do the words used in Aboriginal schools … particularly in maths lessons … evoke mental pictures or concepts that differ from those of children who grow up speaking English and with a conceptual view of the world related to the Western system of knowledge? What is perhaps even more alarming is that teachers are often unaware that this is happening and when the child reacts in ways in which the teacher doesn't anticipate the teacher gives up trying to teach maths effectively and concentrates on teaching 'sums' at which Aboriginal children with their strong aural and visual memories gain some measure of success.

Mathematics is full of new language which must be learnt. Its shorthand prepositions ('over', 'by', 'with' for example) can pose particular problems for learners who are not just encountering the language of mathematics but standard English at the same first time. Inexperienced teachers who confront these issues can tend to throw up their hands and retreat from the process of investigation of cultural intersection.

One long-standing myth that couples these two assumptions is the idea that traditional Indigenous number systems were/are simplistic and thereby deficient, for example that counting is confined to 'one, two, many'. This idea is put to rest in a several papers by John Harris accessible from the Australian Institute of Aboriginal and Torres Strait Islander Studies (http://www1.aiatsis.gov.au/exhibitions/ethnomathmatics/ethno_contents.htm).

The papers by John Harris are directly relevant to this particular issue, but most of the other 18 short papers contained at this site have strong interest for teachers working with Indigenous students and especially those who are living in more remote and tradition-oriented communities. What they do provide is a series of clear accounts of differences in mathematical thinking which should fascinate teachers with an interest in mathematics and numeracy.

Howard (2001) and Perso (2003) both suggest that much mathematics teaching has Aboriginal students doing mathematics that is abstract and not related to their worlds and everyday experiences. As a result, by the time many Aboriginal students have reached the latter years of primary school they have been alienated from learning mathematics. Note how well this idea accords with the third observation about the data with which this paper began.

What to do?

Tracey Frigo provides a series of examples of units and classroom activities across mathematical strands which value the similarities and differences between western and Indigenous mathematical concepts and to recognise the ways in which contemporary Indigenous people use traditional cultural concepts related to mathematics.

- Space — teaching strategies explore the importance of space to Aboriginal peoples; weaving patterns (geometric models); maps/scale drawings and artwork; the design of traditional tools; Aboriginal land maps and population maps (looking at issues such as population shift and land rights).
- Algebra — recognising and representing patterns in music, dance, visual artwork; kinship relationships; creating and using algebraic models to understand trends in Indigenous societies.
- Number — counting and number systems in various cultures. [See the AITSIS material referred to above.]
- Measurement — different ways of measuring distance (time travelled); measuring time (seasonal cycles; cyclic versus linear time).
- Chance and data — using ABS statistics about Aboriginal people (the teacher who designed this activity stressed the importance of obtaining assistance in interpreting statistics from knowledgeable people to avoid stereo-typing); discussions of the use and misuse (misrepresentation) of statistics; card games.

She adds that teachers should be warned against trivialising Indigenous culture by making tokenistic efforts to be inclusive (e.g., simply including Aboriginal colours on activity materials). 'Units such as these [above] should be developed in consultation with Indigenous educators.'

In response to the idea that teachers should move away from a focus on content and the use of materials that may not be relevant to the lives of Aboriginal students to an environment where teachers provide opportunities for the learner to develop their understanding of mathematics through the social context in which they find themselves, the NSW Board of Studies mounted a project in a country town in partnership with the local community. (See Howard et al., 2006.) A series of maths learning activities was developed using a local area of high significance to the local community and following the appropriate protocols for mapping and measurement activities. This another way to do it.

There is no simple template for effective responses however.

Teachers need to investigate for themselves issues such as:

- How do numeracy issues intersect with their Indigenous students' lives?
- In what contexts do they occur? What sorts of mathematics do they entail?
- What choices or options are made to understand, express and represent the numeracy elements of these situations?
- How do people choose to use mathematics? For what particular purposes is mathematical thinking and representation used?
- What are the processes by which numerate decisions are made?

For these tasks, the help of Indigenous education aides and workers, families and other members of the community and the students themselves is essential. It is one of the many ways of putting some flesh of substance on the bones of an effective partnership.

Related ideas about effective pedagogy

What might we learn about pedagogy from other sources which may be of value? Here are two examples.

The pedagogical principles embedded in *Accelerated Literacy* may have a lot to offer for numeracy development. Its fundamental approach is to 'work directly at giving Indigenous students access to literate discourse through intense engagement with age-appropriate literate texts' (Gray). Mathematical language is an essential cognitive tool for working mathematically and developing thinking and cognition around mathematics.

In an early trial of the application of Accelerated Literacy pedagogy to the mathematics classroom Parkin and Morris (2004) aimed to identify useful language that would assist students in completing the Maths300 set of lessons 'Sphinx'. They wanted to develop the language of mathematical transformations, for example the use of verbs such as 'flip', 'rotate', 'translate', and subsequently nominalisations such as 'rotation' and 'translation'.

Explicit teaching of the meta-language required for these tasks, an important tool for engaging in any learning, was built into the learning process. The task was chosen to be at an age-appropriate level rather than the level students were supposedly working at. The activity was repeated as often as necessary until the students had control of the necessary knowledge and skills and were able to both use the mathematical language to support the activity and to successfully complete the activity independently or in pairs.

Teachers who are responsible for both literacy and numeracy development and have been trained in Accelerated Literacy might consider what might be usefully applied from its approach to numeracy development.

Forrest (1997) applied Luke and Freebody's well known *Four Resources Framework* (1990) of literacy practices to numeracy with the following result.

Just as the Four Resources Framework is used to aid programming for literacy, this adaptation could be used to aid programming for numeracy.

Some resources of proven value

The *Task Centre Project For Aboriginal Schools* (www.mav.vic.edu.au/PSTC/aborig/index.html) is of special interest because of its focus and the process of its development. It consists of a range of maths/numeracy activities based on the use of very 'hands on', concrete materials. As the website indicates 'Teachers from Aboriginal schools became aware of the existence of the Task Centre resource through various professional development programs. They recognised the potential of the resource and began a process of trial and review of existing Curriculum Corporation material to determine adaptations necessary for these remote schools. This process extended over almost two years in various schools throughout the Territory.' Research has demonstrated their effectiveness. One such story from Tasmania is contained on the *What Works* website (www.whatworks.edu.au/4_3_3.htm#). The same address will take you to the story about the purpose-designed assessment approach for this project which is of considerable interest.

Technician [Code breaker] Foregrounds mathematical knowledge described in mathematics curriculum.	**Participant** [Text participant] Emphasises how mathematical knowledge is transferred to new situations, and the mathematical demands of the context are understood both from a personal perspective and, where appropriate, from a socio-cultural perspective.
[Text] **User** Emphasises understanding that mathematical texts and forms have different purposes, structures and features.	[Text] **Analyst** Emphasises that numeracy in not neutral and can be challenged. Numeracy involves using mathematics to comment critically on the strengths and weaknesses of arguments and explore bias, and that one can critique how mathematics has been used to draw conclusions and make decisions.

First Steps in Mathematics is a professional development program commissioned by WA DET and developed by staff at Perth's Murdoch University (information accessible at www.steps-pd.com.au). It is designed to help teachers: build or extend their own knowledge of the mathematics underpinning the required student outcomes; understand how students learn mathematics so they can make sound professional judgments; and plan learning experiences that are likely to develop the mathematics outcomes for all students. It is described as very practical and comprehensive by people who have been involved in using the program.

Count Me In Too is an innovative numeracy project operating in NSW Department of Education and Training primary schools. It is designed to assist teachers to broaden their knowledge of how children learn mathematics by focusing on the strategies students use to solve arithmetic tasks. Teachers who have been involved with this project consistently report its effectiveness. Information can be found at: www.curriculumsupport.education.nsw.gov.au/primary/mathematics/countmeintoo/index.htm

The Le@rning Federation (information accessible at www.thelearningfederation.edu.au/tlf2) has produced several thousand digital learning objects many of which are designed to support the development of numeracy. *What Works* decided to support the dissemination and use of these materials because of their obvious impact with Indigenous students, especially with relation to their acquisition of numeracy. These objects are **free**, having been developed by a consortium of all state/territory governments and the Australian and New Zealand Government. However, each education agency has its own means of distribution which you will need to investigate.

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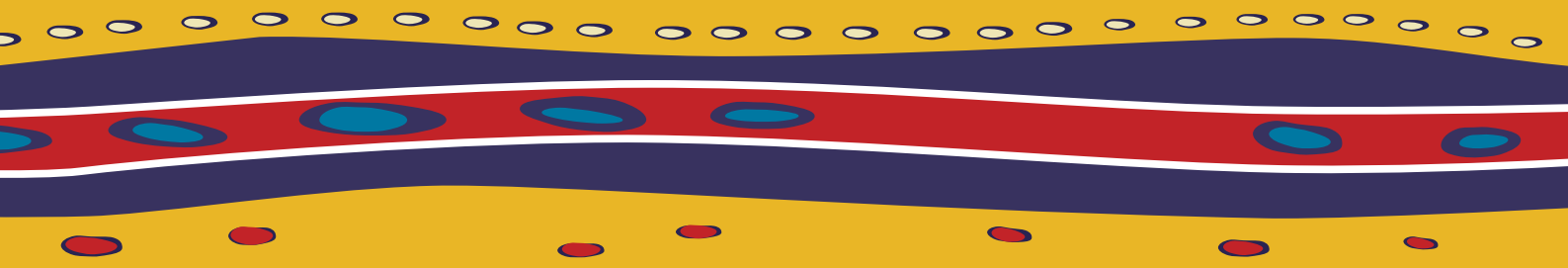
The Work Program

Improving outcomes for Indigenous students



Prepared with the generous assistance of Caty Morris (SA DECS) and Will Moroney (AAMT).

Disclaimer
The views expressed in this document do not necessarily represent the views of the Australian Government Department of Education, Science and Training.

Contacts

If you would like some help with accessing and using *What Works* materials contact:

Christine Reid
Tel: (03) 9415 1299
Fax: (03) 94191205
E-mail: christine.reid@vcta.asn.au

The project's website is at:
www.whatworks.edu.au

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