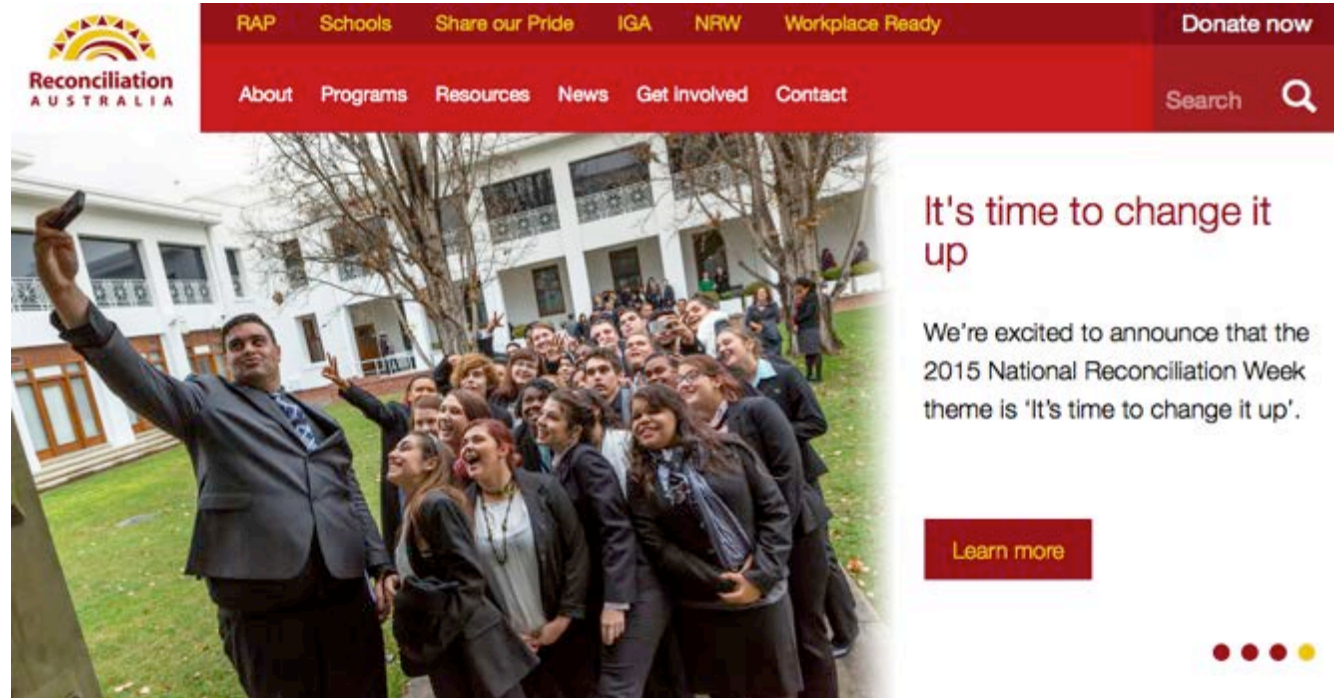# 5 ways forward

Improving learning outcomes of Aboriginal and Torres Strait Islander students in mathematics

Dr Chris Matthews and Caty Morris

Aboriginal & Torres Strait Islander Mathematics Alliance

Why do we need to do something?

- NAPLAN
- Maths opens the door
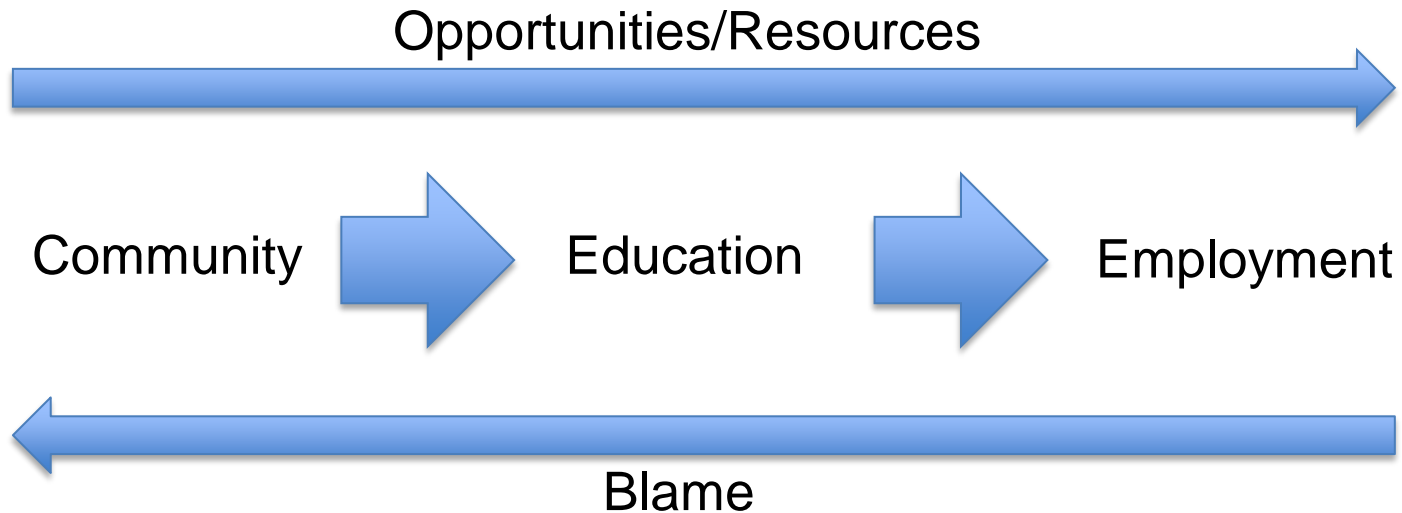- Employment
- Maths and Culture

ATSIMA's First Conference

- Theme: Creating Connections Growing Understanding
- Bringing together
  - Community
  - Education
  - Business
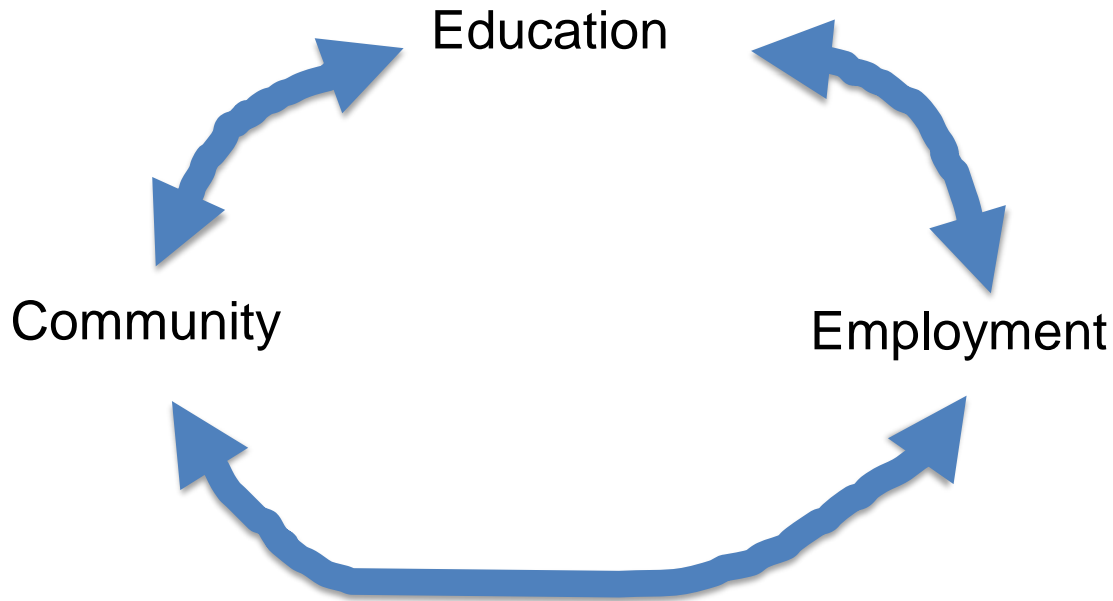- At the start of the conference, we set a challenge….

ATSIMA's First Conference

- The Pipeline…

Opportunities/Resources

Community → Education → Employment

Blame

ATSIMA's First Conference

- Change the pipeline mentality to….

Conference Structure

- Recording the views of Conference participants;
- 2 x 30 min Presentations;
  - 7 Community and 15 Education;
- Reflection (30mins)
  - Presenter left the room;
  - Audience reflected/debated key issues from the presentation;
  - Chair and a Scribe

Conference Structure

- Business Panel (Plenary)
  - BCA, Santos, PwC, Indigenous Accountants Australia, Westpac;
- Reflection (Plenary)
  - Drawing out key points form the Business Panel;
- From all the data above we identify the main emerging themes;
- Break out groups on for each theme;
  - Chair and Scribe

5 ways

1. Culture, identity and confidence
2. Leadership
3. Transition
4. Investment
5. Quality teaching and learning

Aboriginal & Torres Strait Islander Mathematics Alliance Conference, 2014

Discussion

- Why do we need to do something from your perspective?

1. Culture, identity and confidence

"Our job is to…recognise mathematics in culture, celebrate and validate culture, and recognise culture as mathematical."

Conference participant

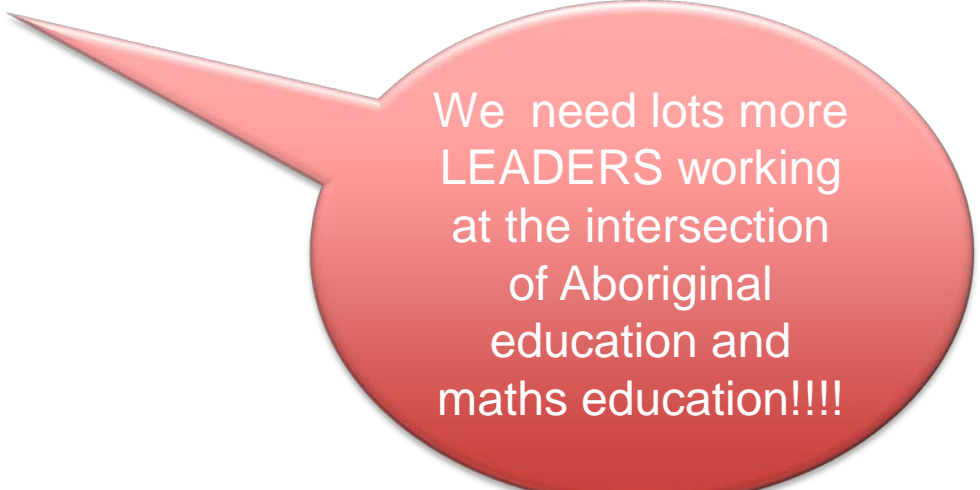# 1. Culture, identity and confidence cont.

- A student's pride and wellbeing takes priority and needs to be strong to engage in rigorous curriculum
- Schools need to validate different ways of learning eg problem solving
- Educate teachers about Aboriginal and Torres Strait Islander mathematics (ethno mathematics) and culture and bring it into the classroom to teach ACM
- Ensure that teaching and learning support and develop cultural identity
- Whole of student and whole of school approach – identity, recognition and support.

2. Leadership

Skilful leadership means that Aboriginal and Torres Strait Islander students and employees experience cultural safety.

Are you taking a lead in this? Can you take a lead?

We need lots more LEADERS working at the intersection of Aboriginal education and maths education!!!!

2. Leadership cont.

Each sector could be responsible in different ways. For example:

- Community is responsible for leading the aspirations eg scholarships and developing the cultural language. Organisations need to play a role regarding jobs where kids still stay strong in culture. The vision for leadership is set by Aboriginal and Torres Strait Islander people.
- In schools quality teaching and learning embeds cultural perspectives, leads change, is relevant to context, gets kids ready for careers
- Business is responsible for providing safe spaces (culturally safe) for Aboriginal and Torres Strait Islander people," where we can be ourselves" and access to careers are supported as well as path ways. Business must lead investment in education internally and externally

3. Transition
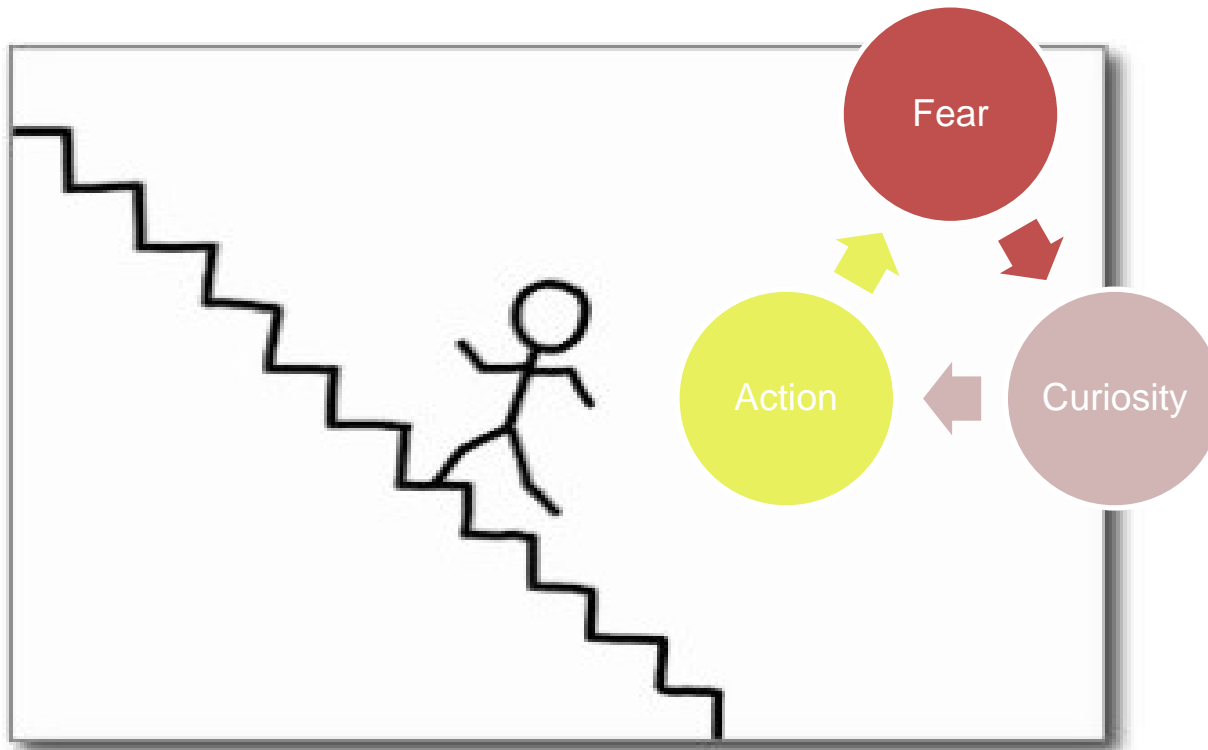
Maths ready in a stepped learning environment during transition steps

3. Transition

Leadership in schools must be a fully engaged with a committed effort. This will include following up with students when they leave school.

"We want the best for our students and ensure they succeed."

4. Investment

When we refer to 'investment', what do we mean? It's not always the mighty dollar. It also means investment in the local community, in relationships, and in generosity of spirit. It's about building social capital in communities and creating business investment in education.

5. Quality teaching and learning of ACM

…requires quality professional learning
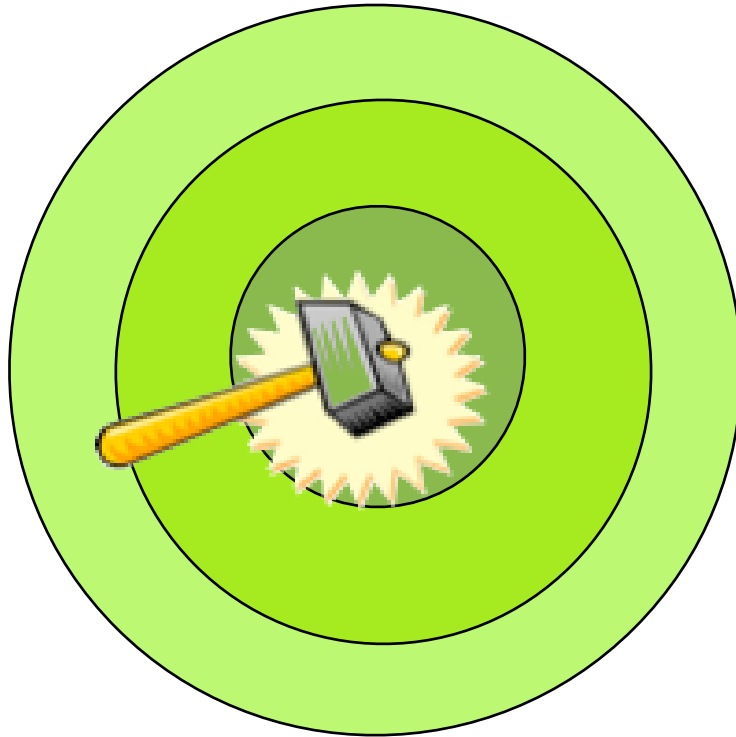
Layer 1: professional learning that looks for ideas to teach the next day

Layer 2: professional learning programs that offer packages

Layer 3: professional learning that is about deep pedagogic change or shift, changes a teacher's thinking.
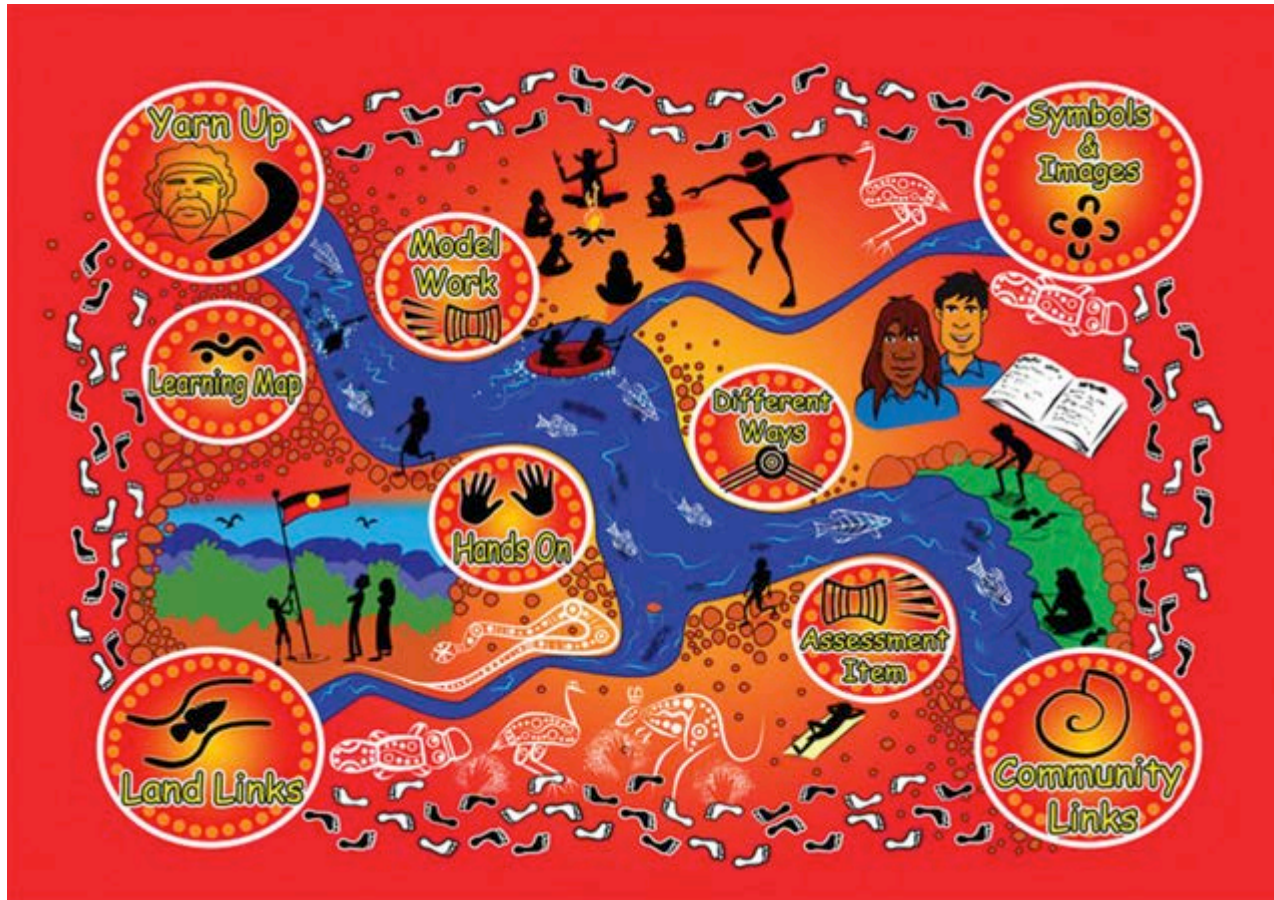
Aboriginal education: Professional learning in ACM to improve learning outcomes

5. Quality teaching and learning of ACM: Culture and mathematics
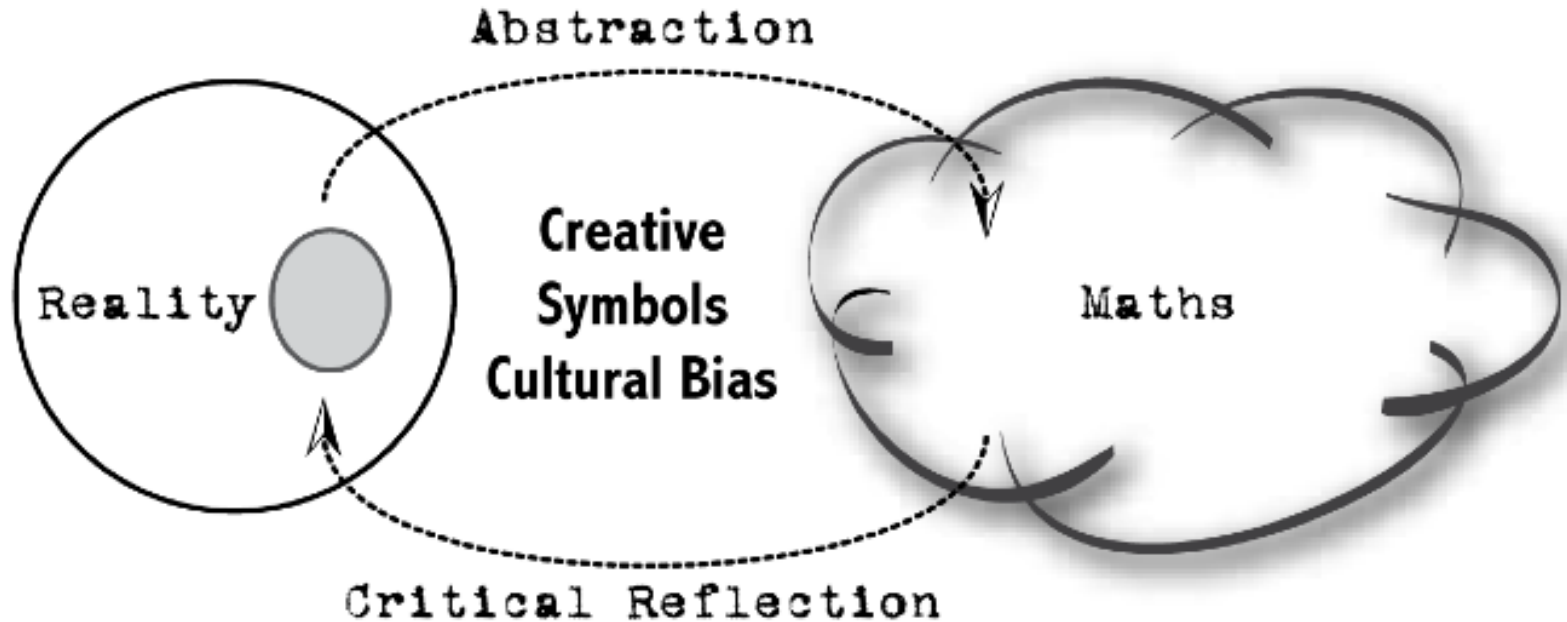
Abstraction

Reality

Creative
Symbols
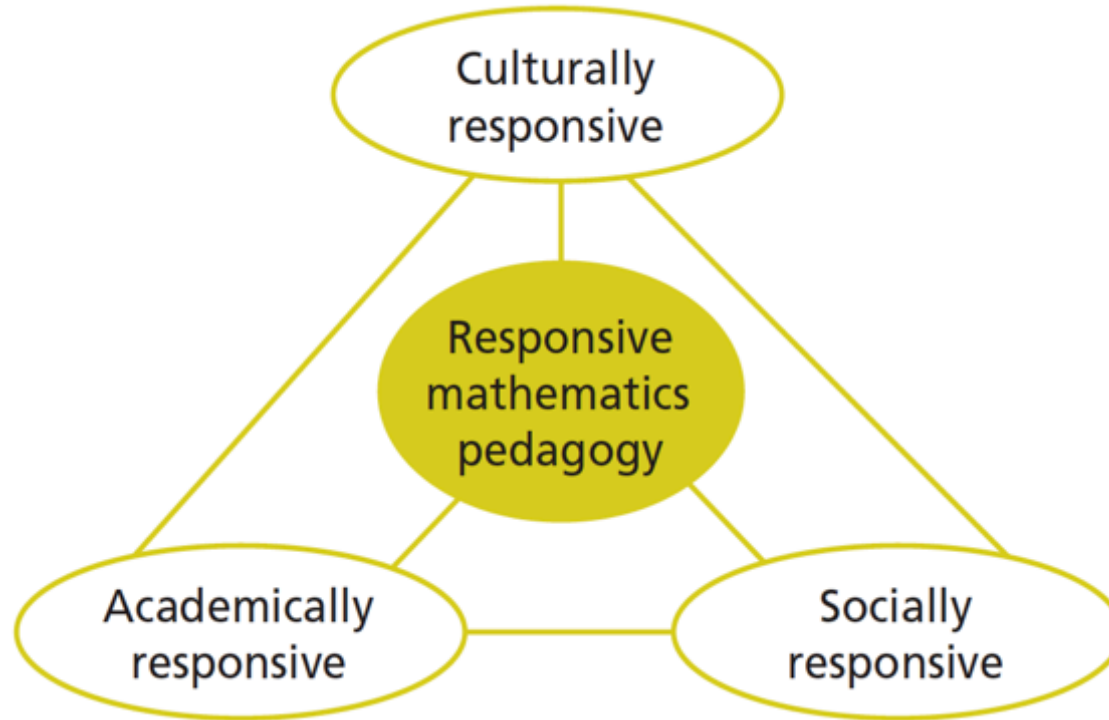Cultural Bias

Maths

Critical Reflection

5. Quality teaching and learning of ACM: 8ways – Orange Public School

mic.aamt.edu.au

8ways.wikispaces.com/

5. Quality teaching and learning of ACM: 3 ways to catch a kangaroo
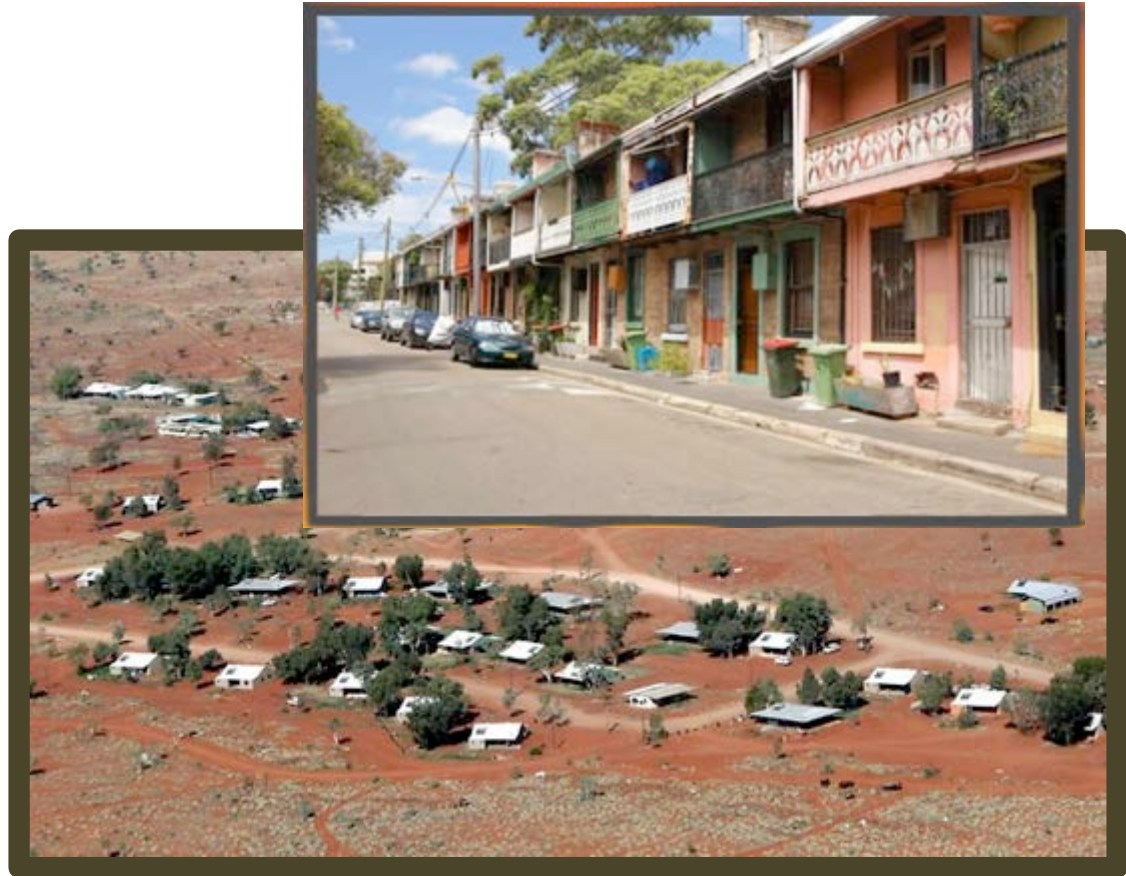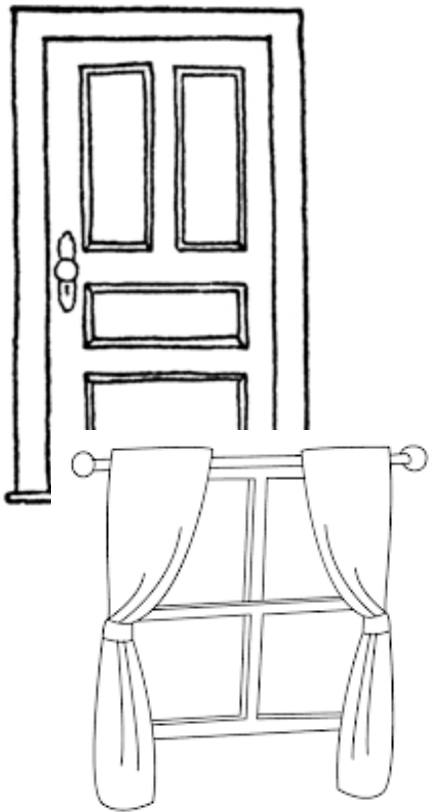

Responsive mathematics pedagogy

5. Quality teaching and learning of ACM cont.

- How do you teach the ACM to Aboriginal and Torres Strait Islander students effectively?

- Do you start with a content descriptor and develop from there?

- Do you start somewhere else?

5. Quality teaching and learning of ACM cont.

Discussion

- What are your questions or comments about the 5 ways/themes?

- Which ones are the most relevant or important to you?

What will you do?

Culture, identity & confidence	Leadership	Transition	Investment	Quality teaching & learning

Contact

Chris Matthews	Caty Morris
Chairperson ATSIMA c.matthews@griffith.edu.au 0401 951 626	Senior Project Officer, Aboriginal and Torres Strait Islander Education caty.morris@acara.edu.au 0409 500 349 08 8339 8093

Aboriginal and Torres Strait Islander Mathematics Alliance

www.atsimanational.ning.com

@ATSIMAAu | #ATSIMA

www.facebook.com/atsimalliance