Anita Chin Primary Mathematics Conference
Sydney | 27 October 2017

Leading Mathematics at Your Primary School: Strategies and Tools

Anita Chin

Founder & Learning Strategist K-8
Anita Chin Mathematics Consultancy
www.anitachinmaths.com.au

Anita Chin
inspired mathematics teaching

Overview

- What do we want?
- What do we need?
- How do we do all that?!
- When will we do it?

Anita Chin

But...

- We are already doing L3, CMIT...
- There's too much content to teach...
- I have a composite class...
- The kids don't know...
- We don't have enough equipment...
- There's no money for teacher PL.

Anita Chin

However...

DEEP knowledge

is not DESIRABLE,

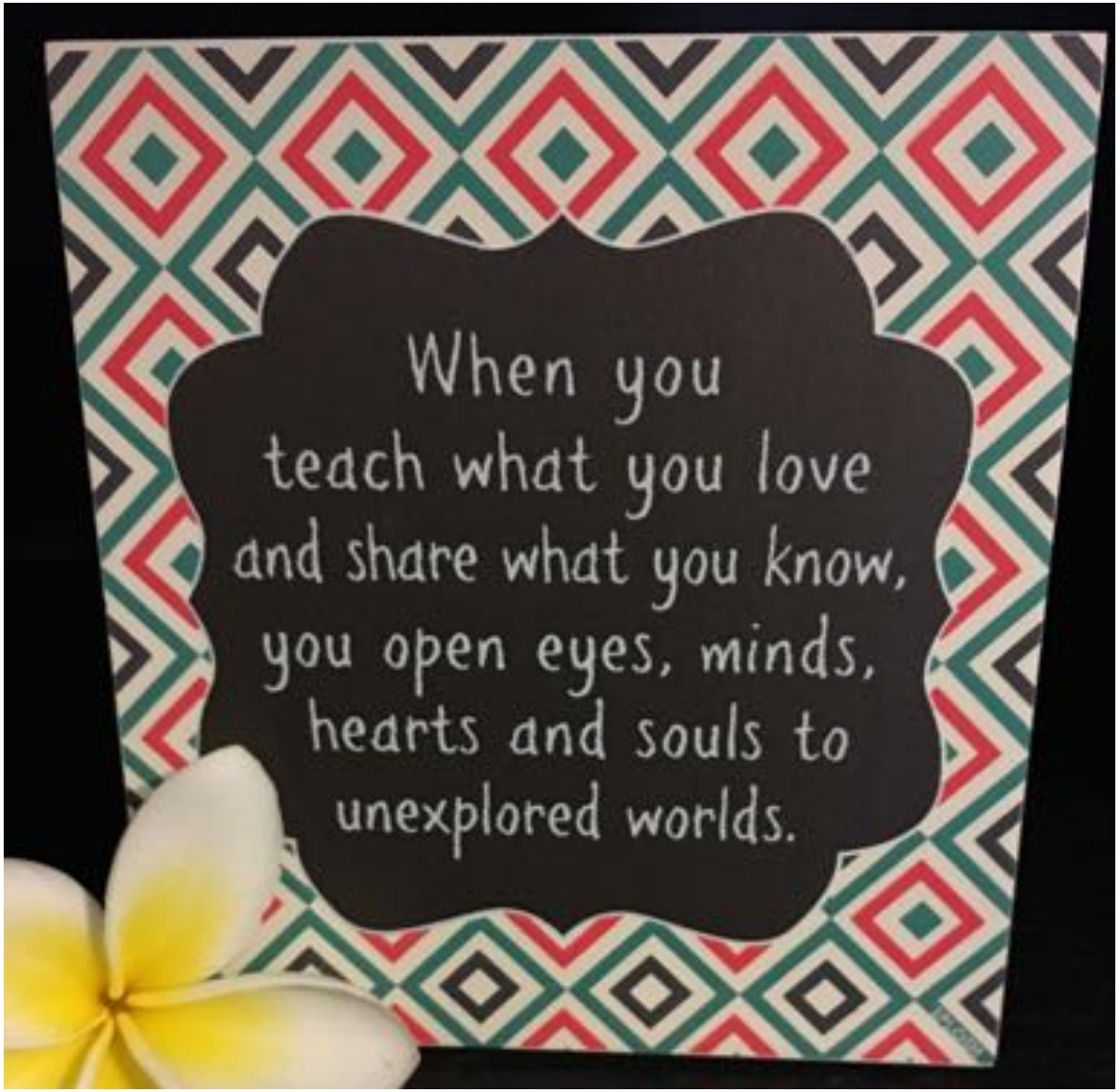
it is REQUIRED.

Anita Chin

STEP 1: What do we want?

- A shared whole-school purpose and vision

Anita Chin



From Anita's office

Anita Chin

Go with the ‘goers’ and don’t worry about the ‘blockers’.

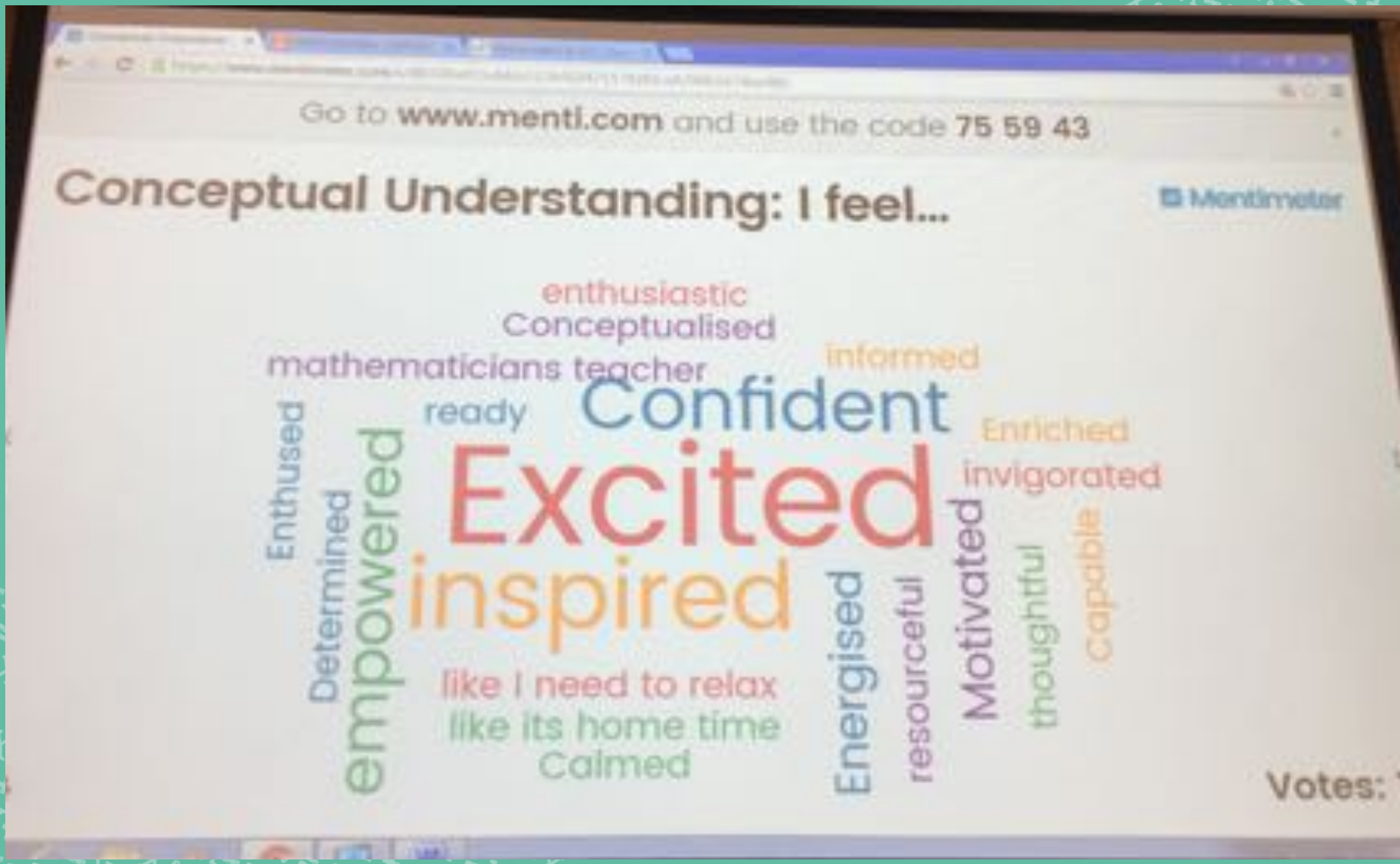
Anita Chin

Anita Chin

What do we want?

- A shared whole-school purpose and vision
- Teachers who are excited about maths!

Anita Chin



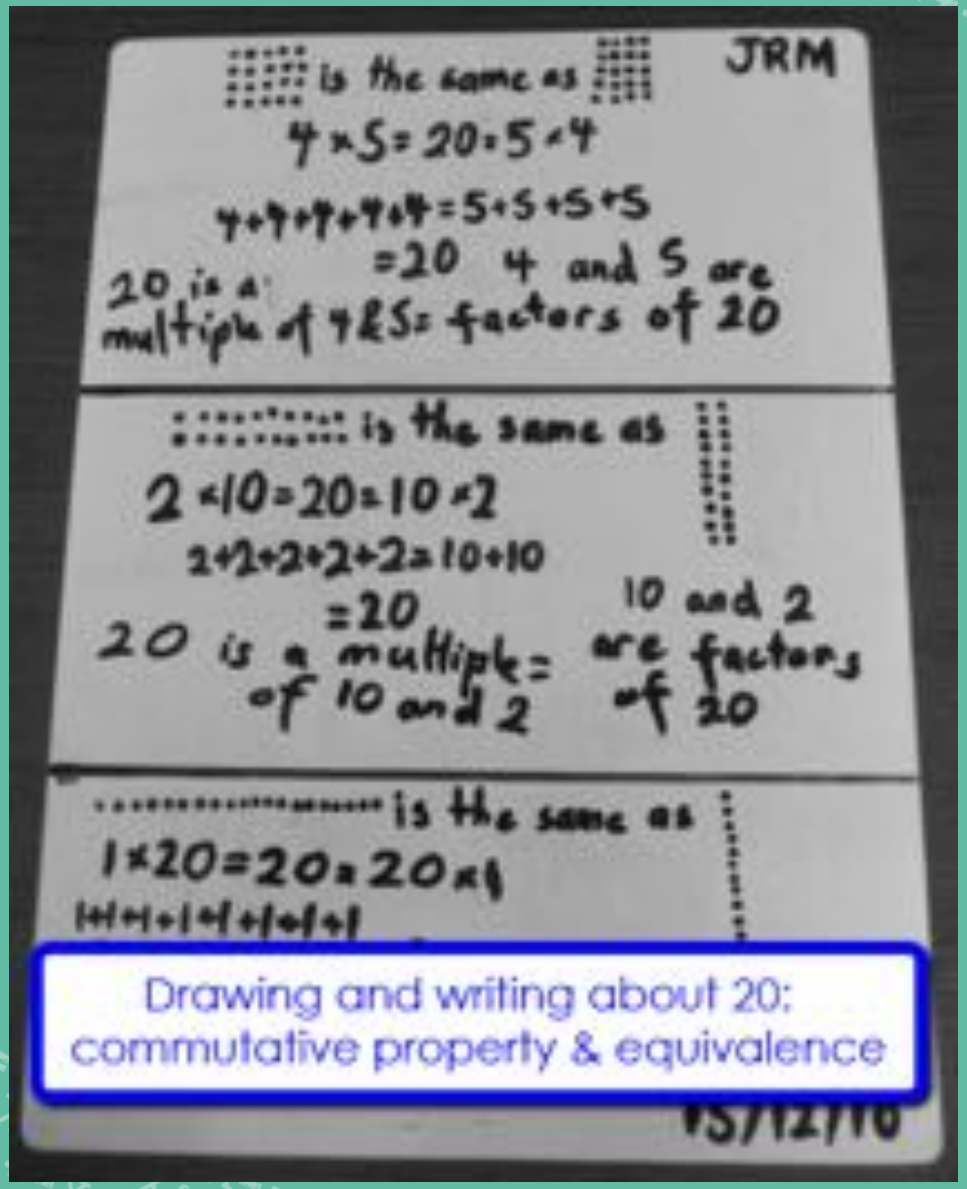
Take-aways from a Primary Mathematics Leaders Professional Learning Day with Anita Chin | Lismore Diocese, NSW | 2016.

Anita Chin

What do we want?

- A shared whole-school purpose and vision
- Teachers who are excited about maths!
- Creating confident teachers of maths
- Students with a conceptual understanding

Anita Chin



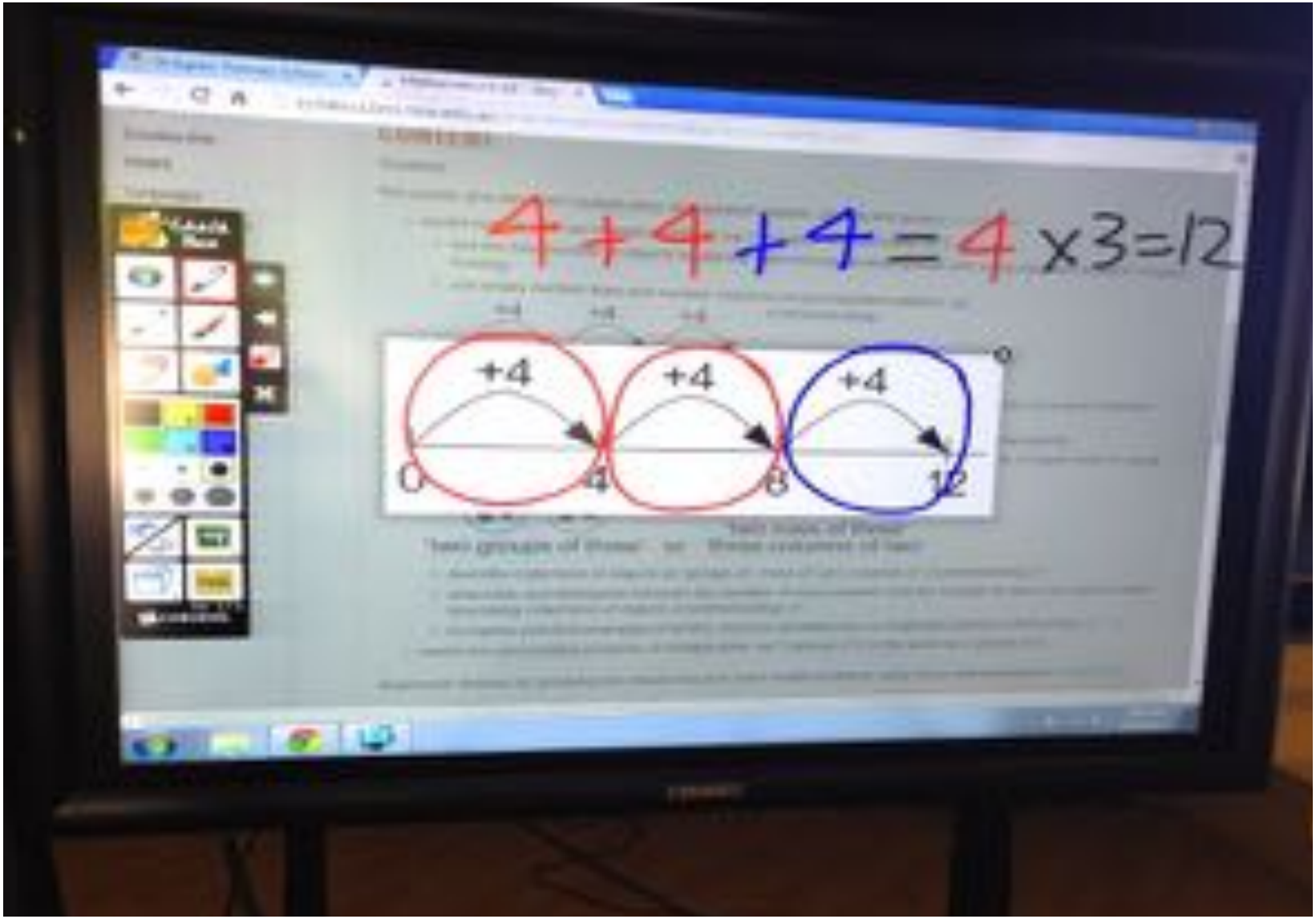
Evidence of a students' conceptual understanding of multiplicative thinking using the array model | OLPS PS, NSW | 2010.

Anita Chin

STEP 2: What do we need?

- Teachers need tools to do their job

Anita Chin



A Brighter Image, Brookvale have supplied the touchscreen panel Anita is using today. The brand is *AstralVision*. Contact Brett Garner 02 9938 6866. View a video of this at http://www.anitachinmaths.com.au/teaching-with-technology.html

Anita Chin

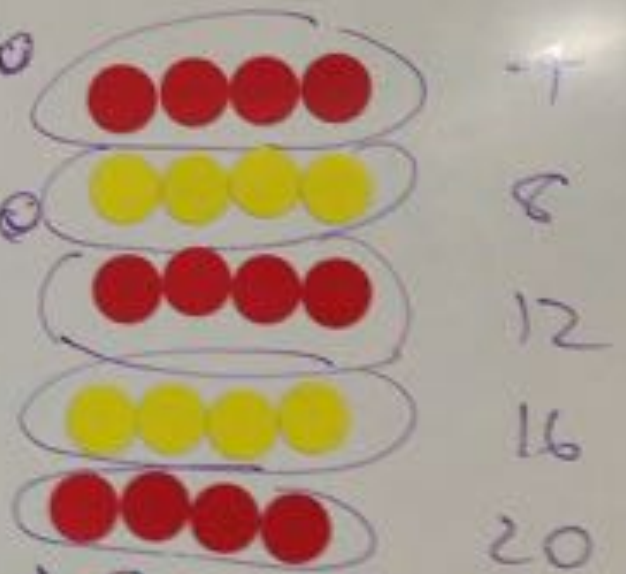
5 groups of 4 is 20

5 horizontal rows of 4 is 20

the 5th multiple of 4 is 20

4 multiplied by 5 is 20 ☺

the product of 4 and 5 is 20 ☺



4, 8, 12, 16, 20

Ideas for making maths visible available from Anita's website
http://www.anitachinmaths.com.au/making-maths-visible.html

Anita Chin

Equipment lists and Picture Glossaries available for download from Anita's website http://www.anitachinmaths.com.au/equipment.html

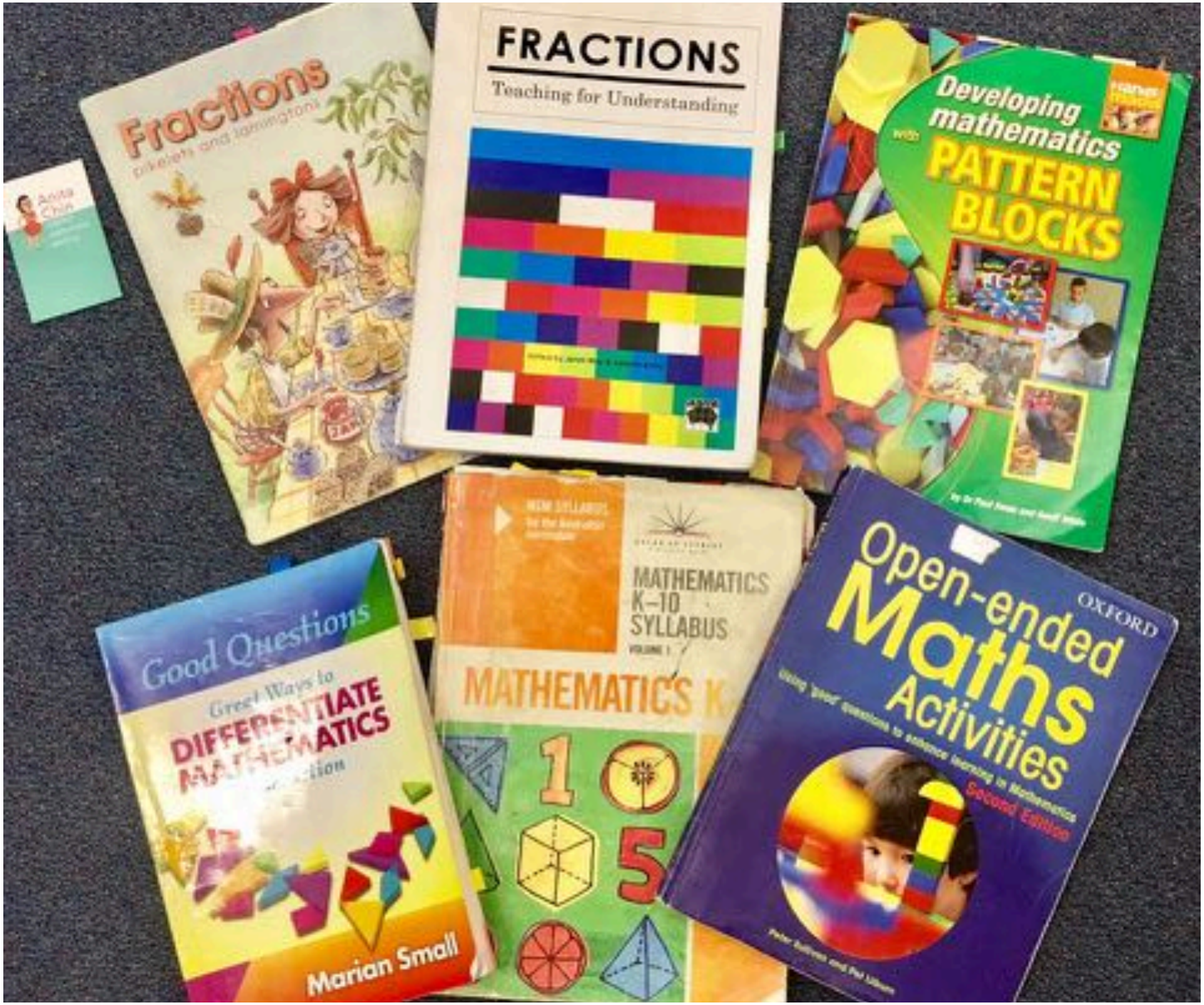
Anita Chin

What do we need?

- Teachers need tools to do their job
- Pedagogical content knowledge (PCK)

Shulman (1987)

Anita Chin



Teacher reference books for teaching Fractions K-6: Research basis, the syllabus, good tasks, use of tools, open-ended questions for talk.

Anita Chin

Make it,

Say it,

Draw it,

Write it

Anita Chin

Anita's classroom mantra. Eg. Students roll a double die to make two numbers, then say "I rolled a 4 and a 3. Three groups of 4 is 12". They draw over the dots to make an array on a student insert sleeve whiteboard. They write a number sentence to describe the picture 4+4+4=4 x 3 = 12

Anita Chin

What do we need?

- Teachers need tools to do their job
- Pedagogical content knowledge (PCK)
- Leaders need to lead

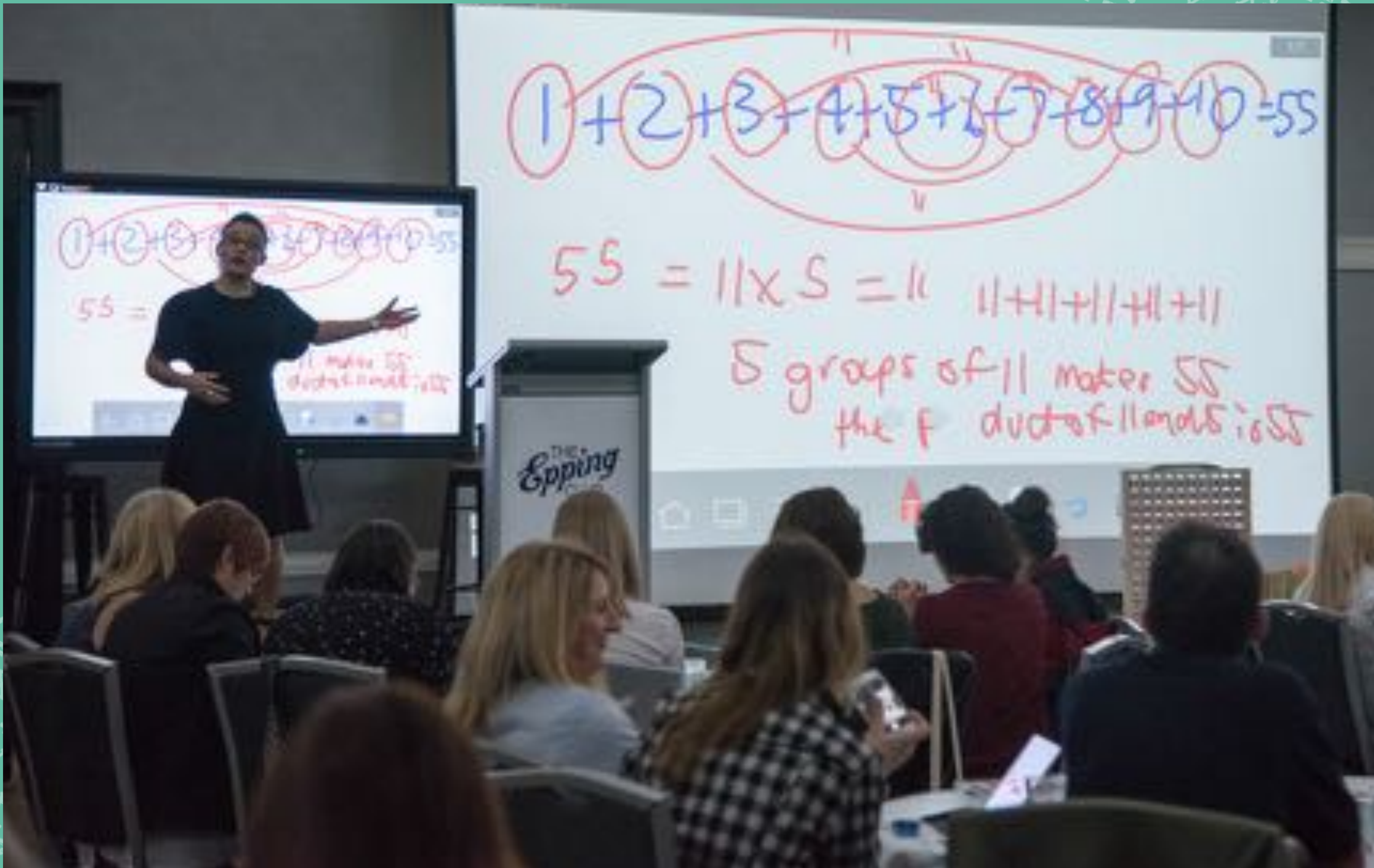
Anita Chin

Task #1: Leading teacher learning

Prove that the sum of the ten numbers in the first horizontal row is 55

Student whiteboard inserts available to download from Anita's website
http://www.anitachinmaths.com.au/insert-sheets.html

Anita Chin


1+2+3+4+5+6+7+8+9+10=55
55 = 11x5 = 11
11+11+11+11+11
5 groups of 11 makes 55
Epping

Anita Chin

What do we need?

- Teachers need tools to do their job
- Pedagogical content knowledge (PCK)
- Leaders need to lead
- Teacher driven whole-school PL

Shulman (1987)

Anita Chin

200 primary educators from 5 schools at a Community of Schools SDD with Anita Chin | Gorokan PS, NSW | 2017

Anita Chin

STEP 3: Changing practice

- Take action, take risks, why wait?
- Implement what you already know

Anita Chin

From Anita's office

Anita Chin

Changing practice

- Take action, take risks, why wait?
- Implement what you already know
- Commit to colleagues

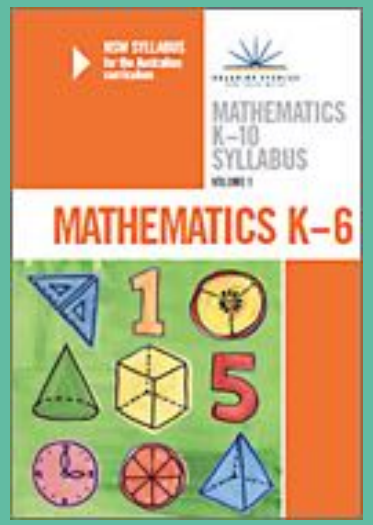
Anita Chin

Team planning with the Instructional Leader and Year 4 teachers for an Anita Chin demonstration lesson | Gorokan PS, NSW | 2017

Anita Chin

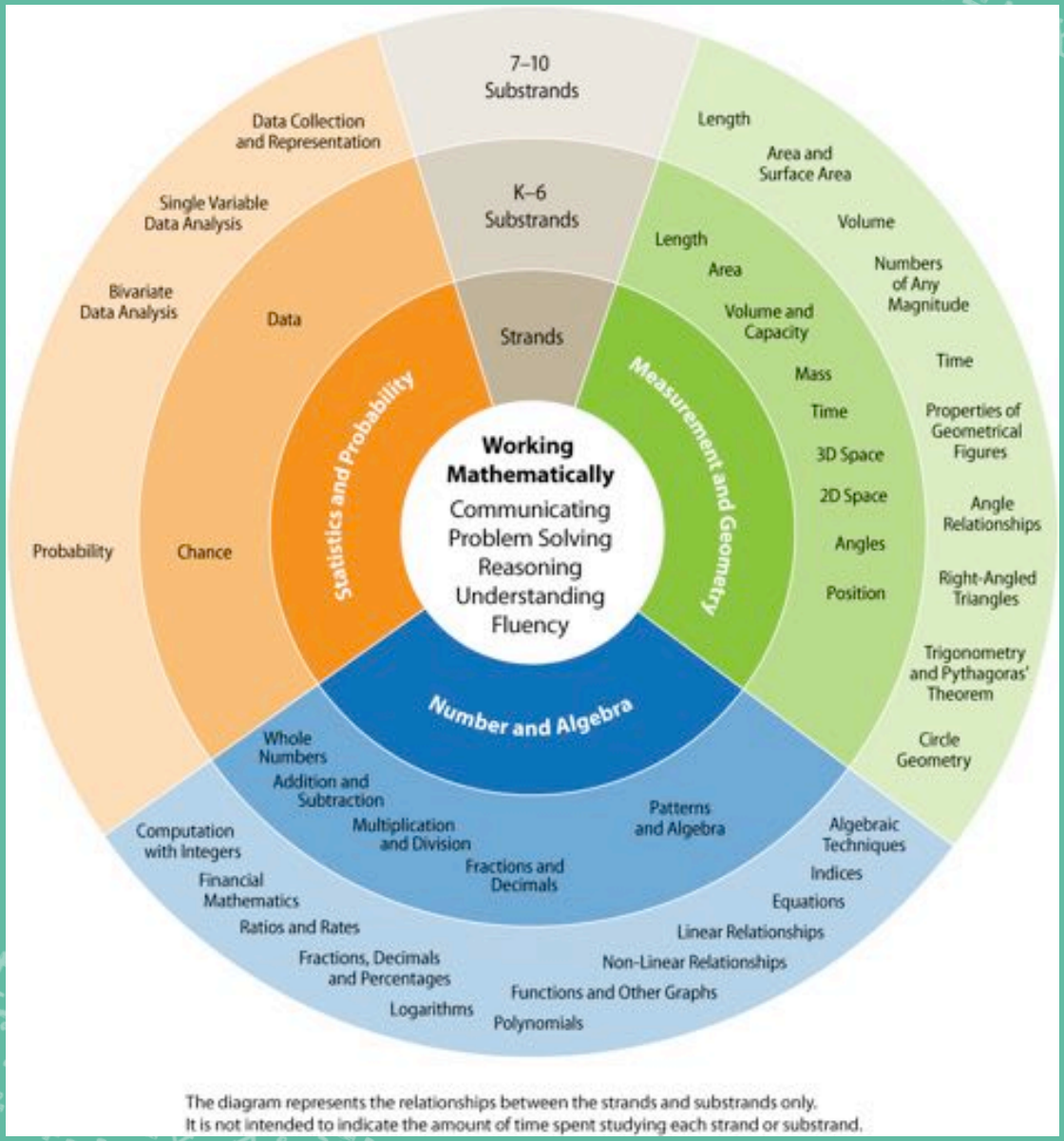
Changing practice

- Take action, take risks, why wait?
- Implement what you already know
- Commit to colleagues
- Honour the orange book



Copies of the NSW Maths Syllabus can be purchased from Coop Books, $28.20. Order online here for delivery within 48 hours.

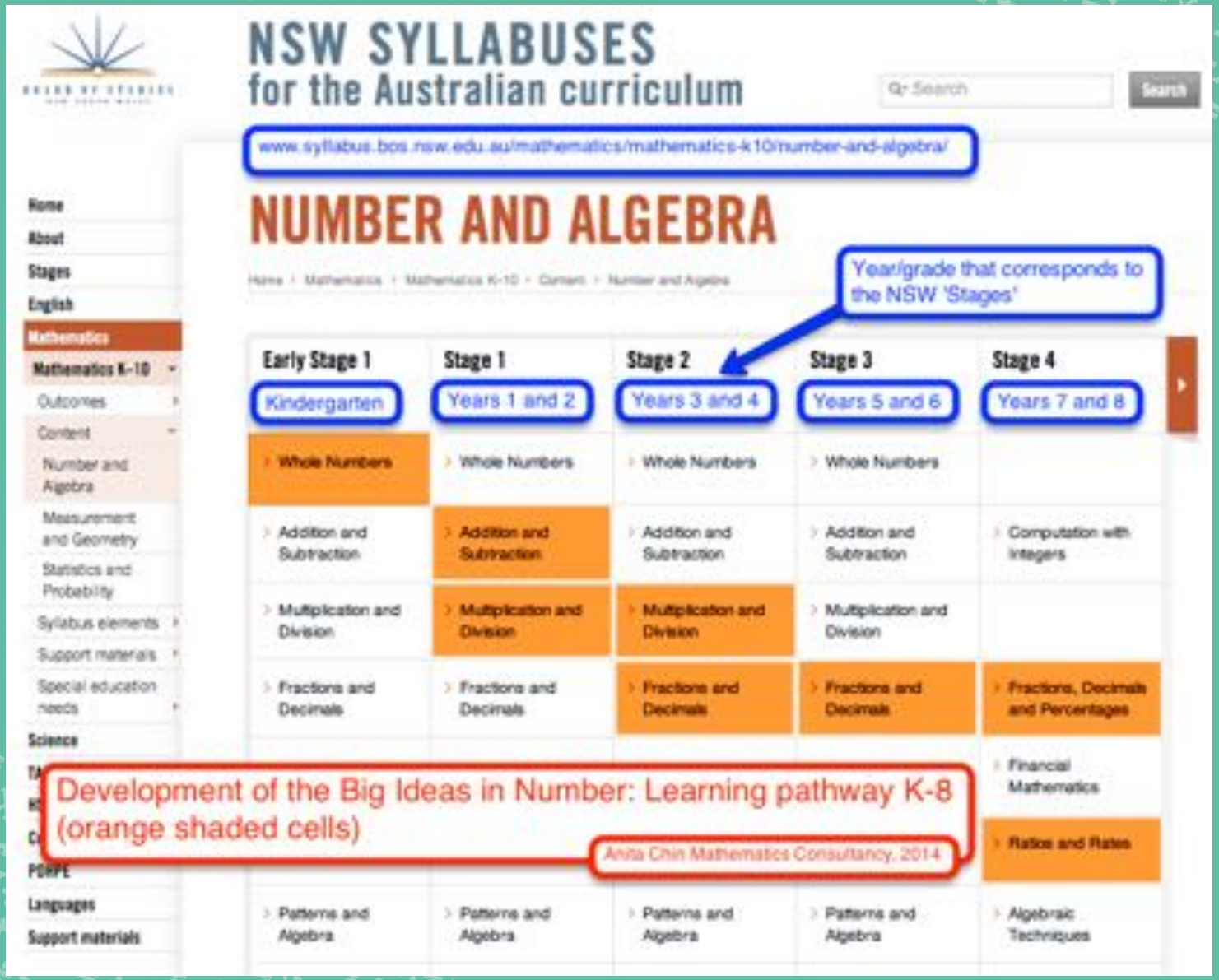
Anita Chin



The diagram represents the relationships between the strands and substrands only.
It is not intended to indicate the amount of time spent studying each strand or substrand.

Online *NSW Mathematics K-10 Syllabus for the Australian Curriculum* (BOSNSW, 2012)
http://syllabus.nesa.nsw.edu.au/mathematics/mathematics-k10/number-and-algebra/

Anita Chin



Online *NSW Mathematics K-10 Syllabus for the Australian Curriculum* (BOSNSW, 2012)
http://syllabus.nesa.nsw.edu.au/mathematics/mathematics-k10/number-and-algebra/

Anita Chin

NSW Mathematics K-10 Syllabus for the Australian Curriculum (BOSNSW, 2012)

TEACHER WORD WALL: Multiplication and Division

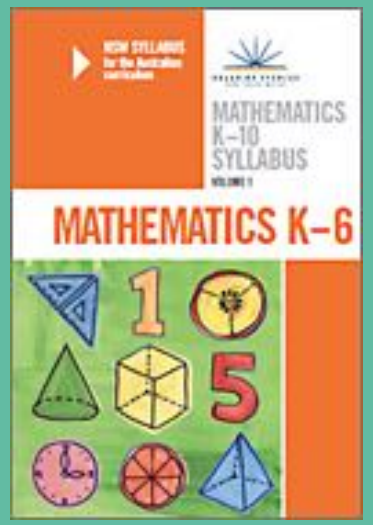
Big Idea	Early Stage 1 (p.48)	Stage 1		Stage 2		Stage 3	
		Part 1 (p.78)	Part 2 (p.87)	Part 1 (p.134)	Part 2 (p.137)	Part 1 (p.201)	Part 2 (p.204)
Describing groups	group	group	group	group			
			add				
			take away				
			row	row			
				horizontal			
			column	column			
				vertical			
		number of groups	number of rows				
			number of columns				
		number in each group	number in each row				
			number in each column				
			array	array			
Multiplication				multiply	multiply	multiply	multiply
				multiplied by	multiplied by	multiplied by	multiplied by
					product	product	product
				multiplication	multiplication	multiplication	multiplication
				multiplication facts	multiplication facts	multiplication facts	multiplication facts
						area	area
						thousands	thousands
						hundreds	hundreds
					tens	tens	tens
					ones	ones	ones
				double	double	double	double
					multiple	multiple	multiple
Division	share	sharing	shared equally				
		shared between	shared between	shared between	shared between		
		left over	part left over		remainder	remainder	remainder
						fraction	fraction
						decimal	decimal
				divide	divide	divide	divide
				divided by	divided by	divided by	divided by
						quotient	quotient

K-6 Language Word Walls available to download from Anita's website
http://www.anitachinmaths.com.au/language-ww.html

Anita Chin

Changing practice

- Take action, take risks, why wait?
- Implement what you already know
- Commit to colleagues
- Honour the orange book
- Respect learners needs



Anita Chin

Kindergarten seated in an array to start a demonstration lesson with Anita Chin | OLPS PS, NSW | 2010

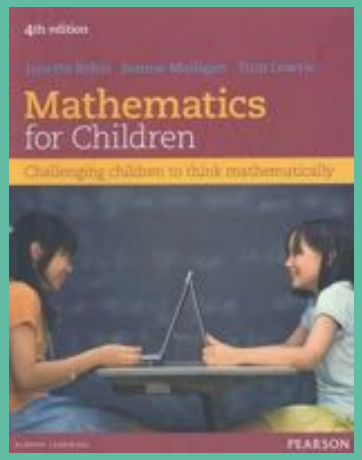
Anita Chin

STEP 4: Embarking on a whole-school approach journey

Whole-school professional learning:

- Whole-curriculum knowledge K-6
- Developmental sequences of learning
- Connections within a substrand
- Connections across substrands

Anita Chin



A teacher cannot teach what she or he does not know

Janette Bobis, 2013

Bobis, J., Mulligan, J. & Lowrie, T. (2013). *Mathematics for children: Challenging children to think mathematically.* Sydney: Pearson.

Anita Chin

Scope and sequence writing

An opportunity to empower teachers!

- Who writes this and why?
- Does your school ‘own’ it?
- Is it a whole-school consistent approach?
- When are you ready to write this?

Anita Chin

Scope and sequence writing day with leaders | Cartwright PS, NSW | 2016

Anita Chin

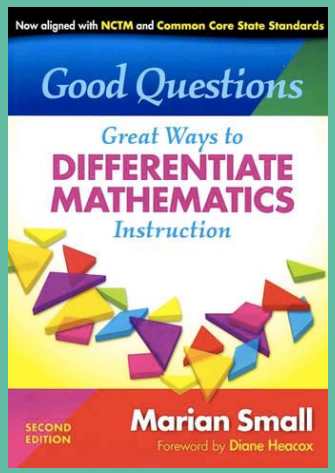
Creating flexible mathematical thinkers and problem solvers

What do classrooms look, sound and feel like?

- Students doing the maths, not listening
- Visual, verbal and hands-on learning
- Innovative teaching techniques
- Teachers inspiring and delighting students.

Anita Chin

Task #2: Creating flexibility



Adapted from p.43 & p.51. Small, M (2009). *Good questions: great ways to differentiate mathematics instruction.* New York: Teachers College Press

Anita Chin

Leaders that improve teaching

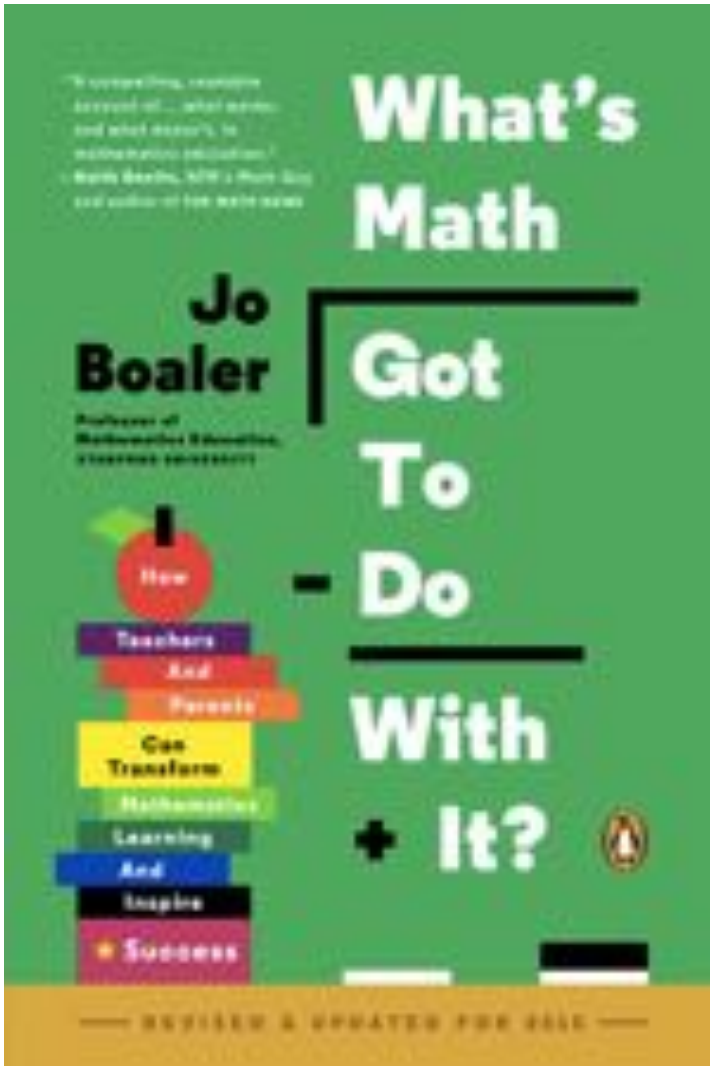
- The art of teaching mathematics is complex
- Listen, model and support colleagues
- Provide time for new thinking
- Step back
- During team meetings talk about teaching rather than admin.

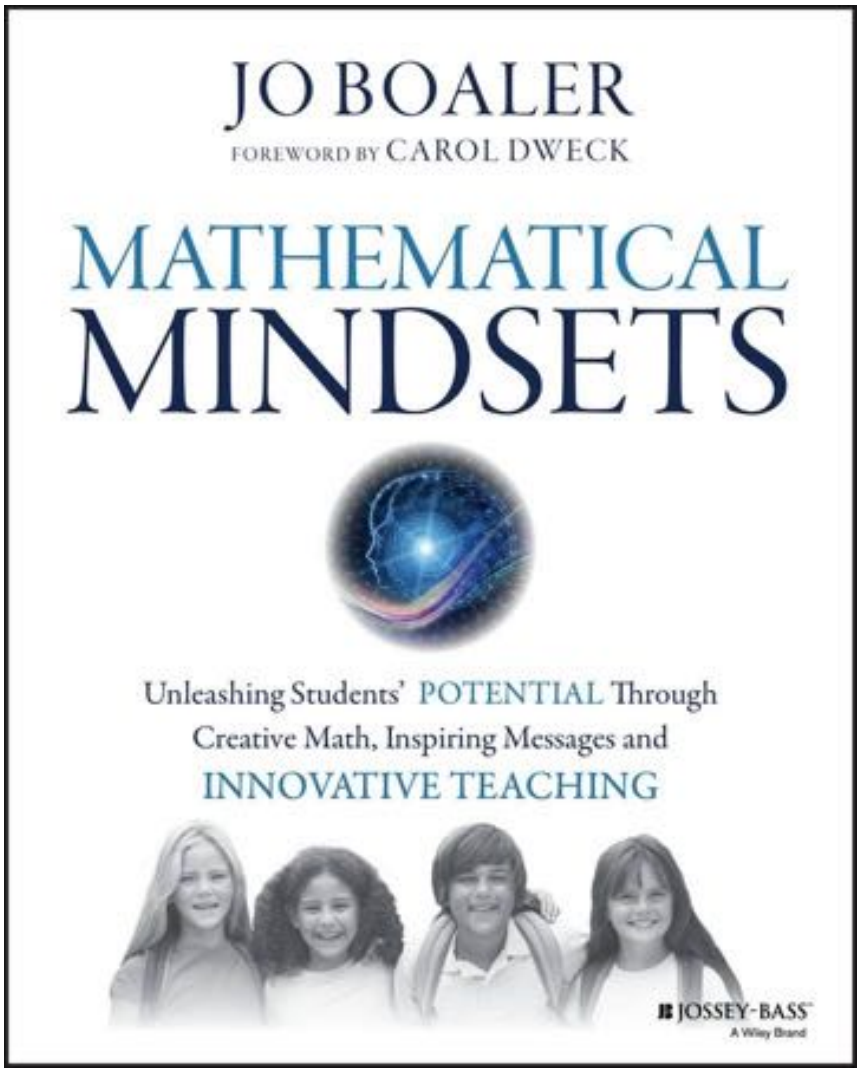
Anita Chin

Books for leaders of maths

Books for Leaders of Primary Mathematics from Anita's bookshelf. Lists available from Anita's website http://www.anitachinmaths.com.au/reference-books.html

Anita Chin



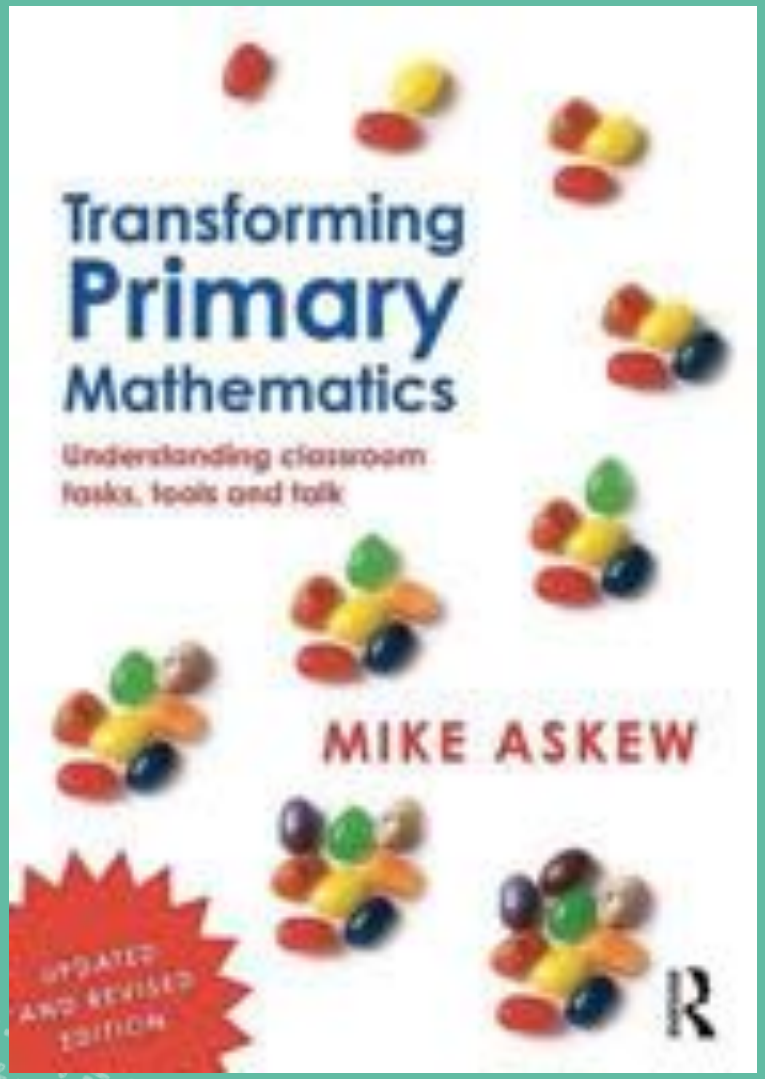


Boaler, J. (2015). *What's math got to do with it?* New York: Penguin.

Boaler, J. (2016). *Mathematical Mindsets* Jossey-Bass

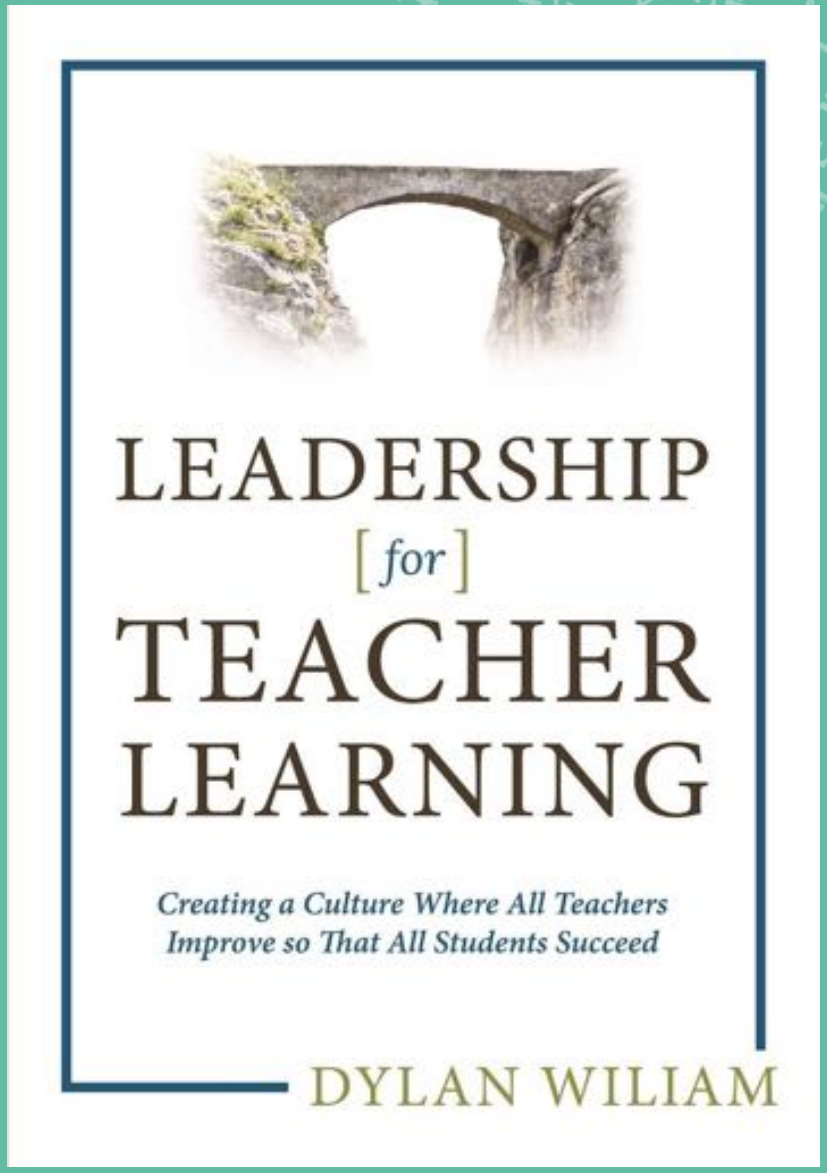
https://www.youcubed.org

Anita Chin



Askew, M. (2016). *Transforming primary mathematics: Understanding classroom tasks, tools and talk.* London: Routledge.

Anita Chin



Wiliam, D (2016). *Leadership for teacher learning.* Florida: Learning Sciences International.

Anita Chin

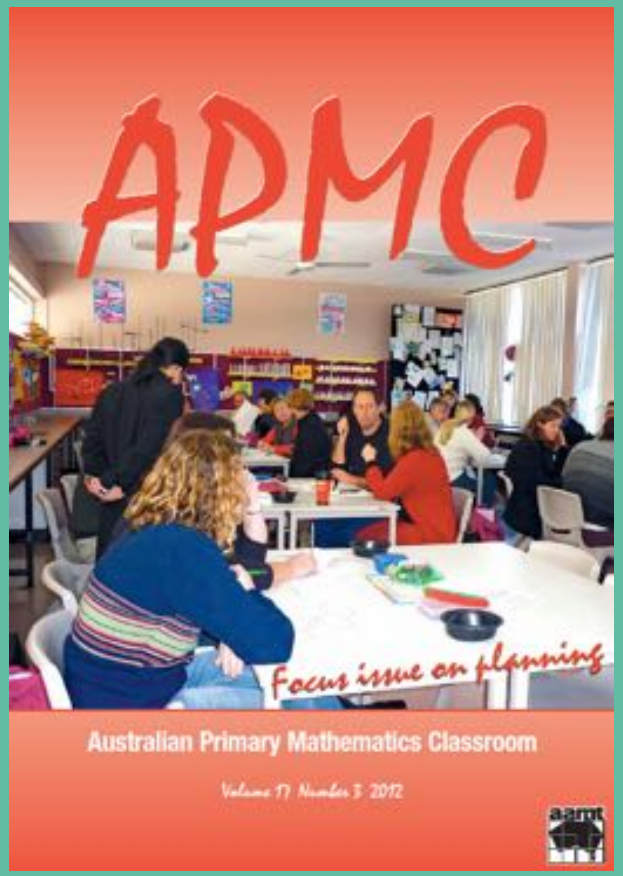
Journals for primary mathematics

Australian

Primary

Mathematics

Classroom



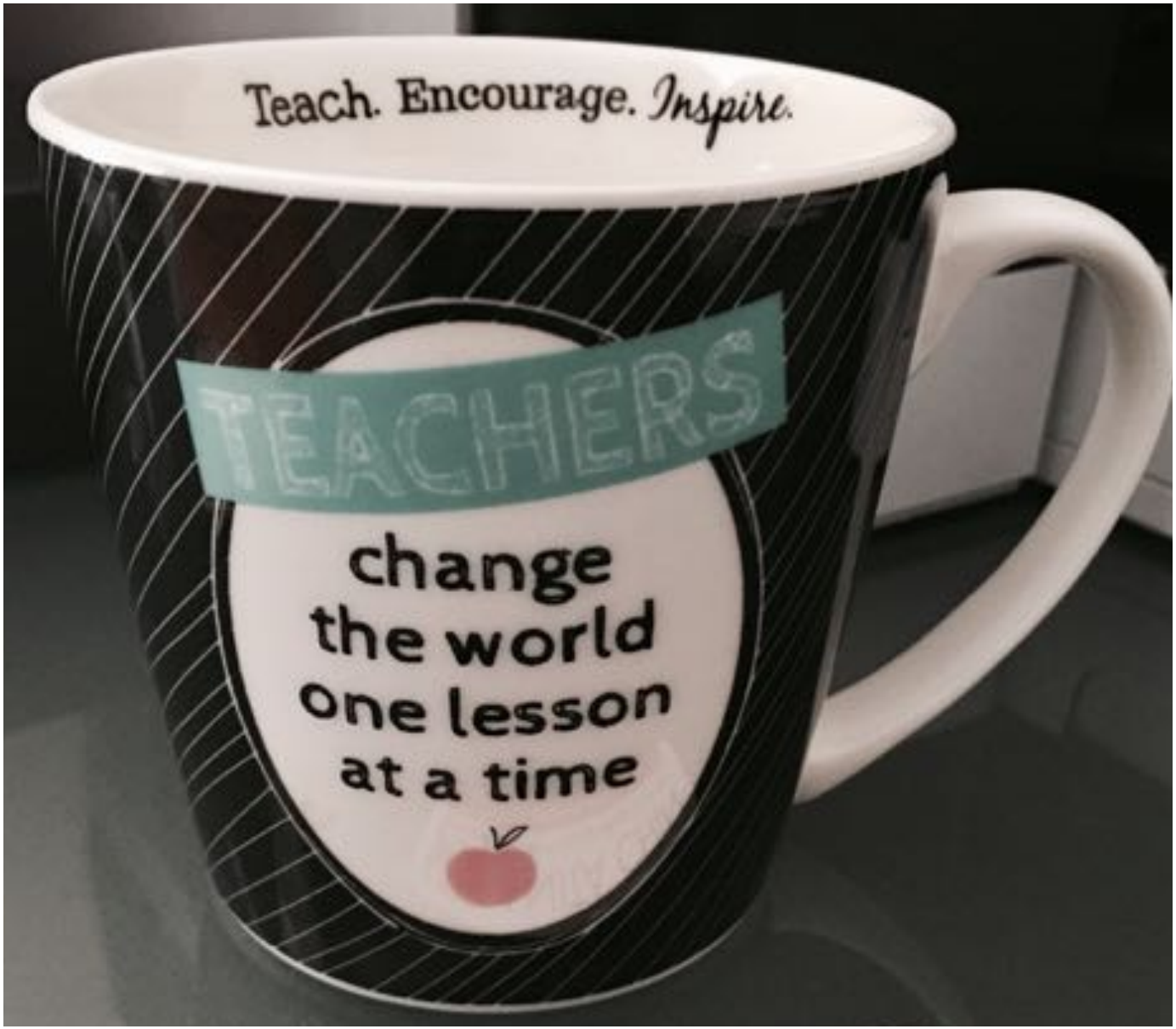
4 issues per annum. Further details from the Australian Association of Mathematics Teachers (AAMT) website http://aamt.edu.au/Journals

Anita Chin

Important things to remember

- The wants and needs of your staff
- Your student's needs
- Your Principal's level of commitment
- Model more, talk less
- Mathematical content knowledge is crucial.

Anita Chin



From Anita's office

Anita Chin

Thank you

w www.anitachinmaths.com.au

e anita@anitachinmaths.com.au

fb www.facebook.com/achinmaths

Anita Chin
inspired mathematics teaching