

How to create whole-school Maths passion, for K-8 educators

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Today's plan

- What does it takes to engage the whole-school and whole child in mathematics?
- Successful whole-school strategies for maths engagement
- How can schools fall in love with maths again and again?

Engaging the whole school

- Teachers who are **excited** about maths!

Go to www.menti.com and use the code 75 59 43

Conceptual Understanding: I feel...

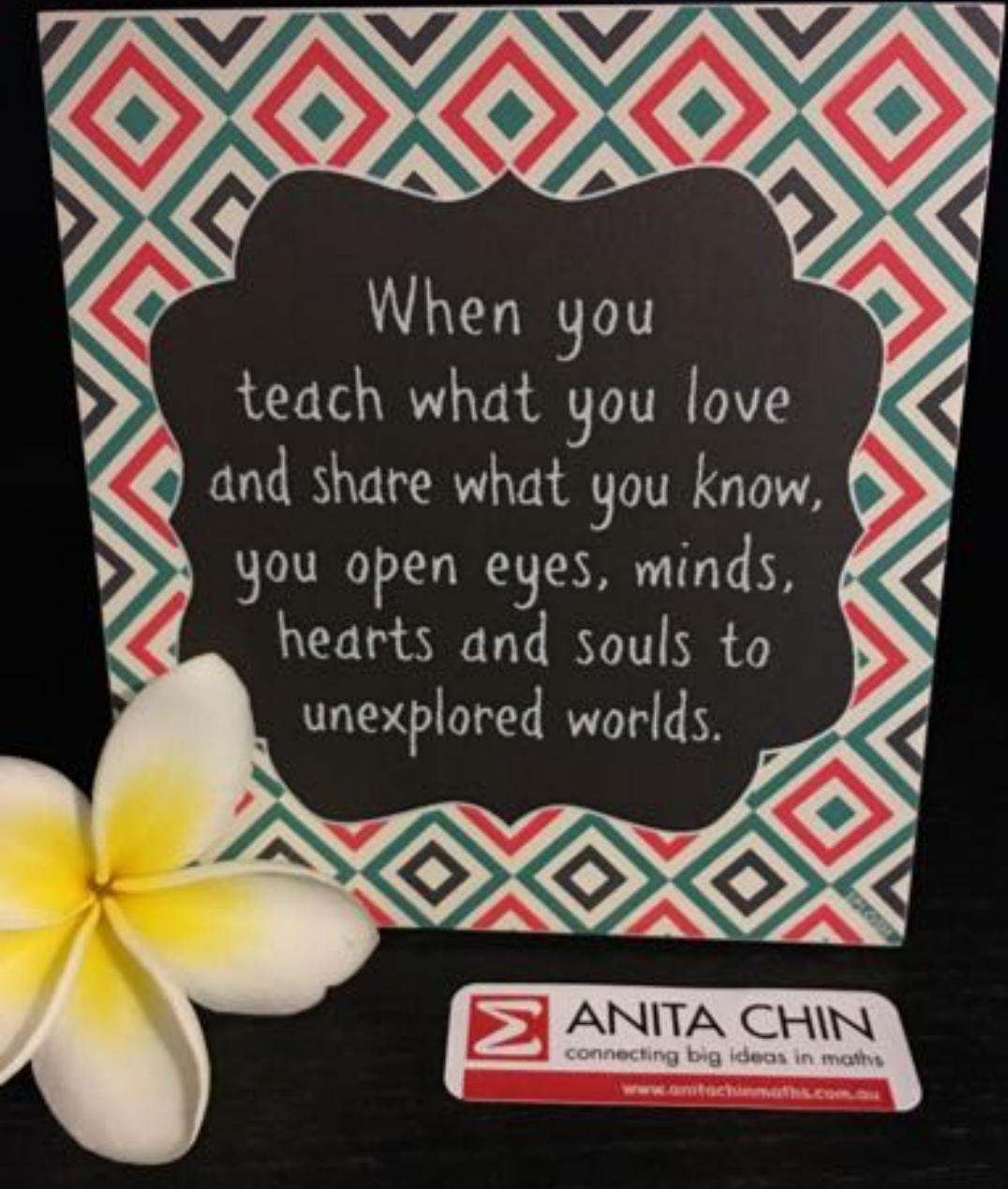
Mentimeter



Votes:

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





When you
teach what you love
and share what you know,
you open eyes, minds,
hearts and souls to
unexplored worlds.



Engaging the whole school

- Teachers who are **excited** about maths!
- Creating **confident** teachers of maths K-8

LEARNING STYLES



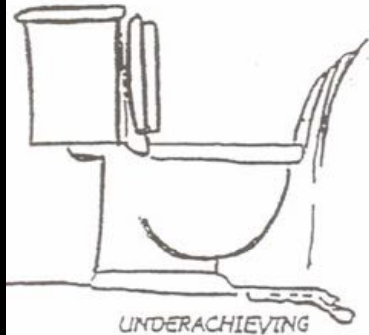
MAINSTREAMING



OVERACHIEVING



TASK FORCE



UNDERACHIEVING



GIFTED



DYSLEXIC



LEARNING DIFFICULTIES



CONTROL GROUP



CO-OPERATIVE
LEARNING

Managing the Learning Environment



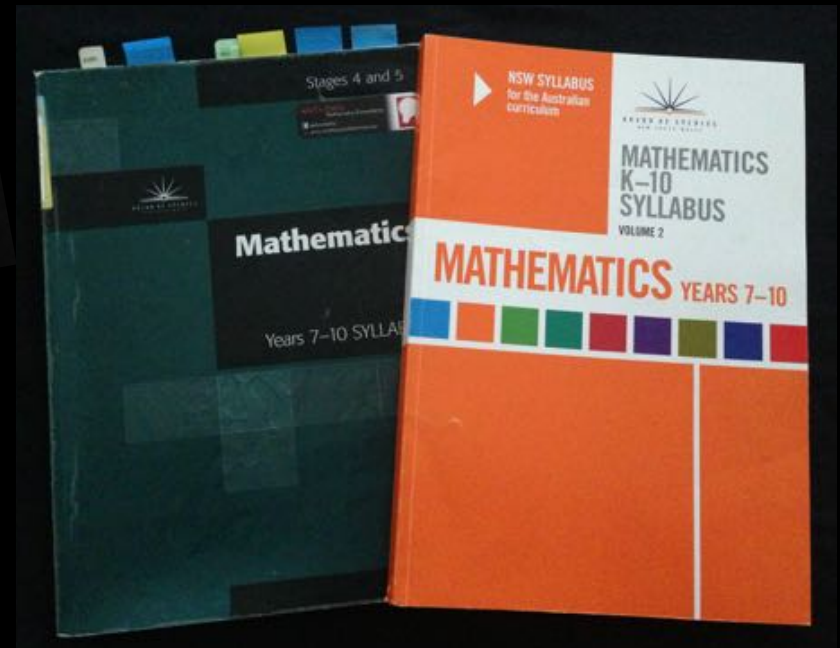
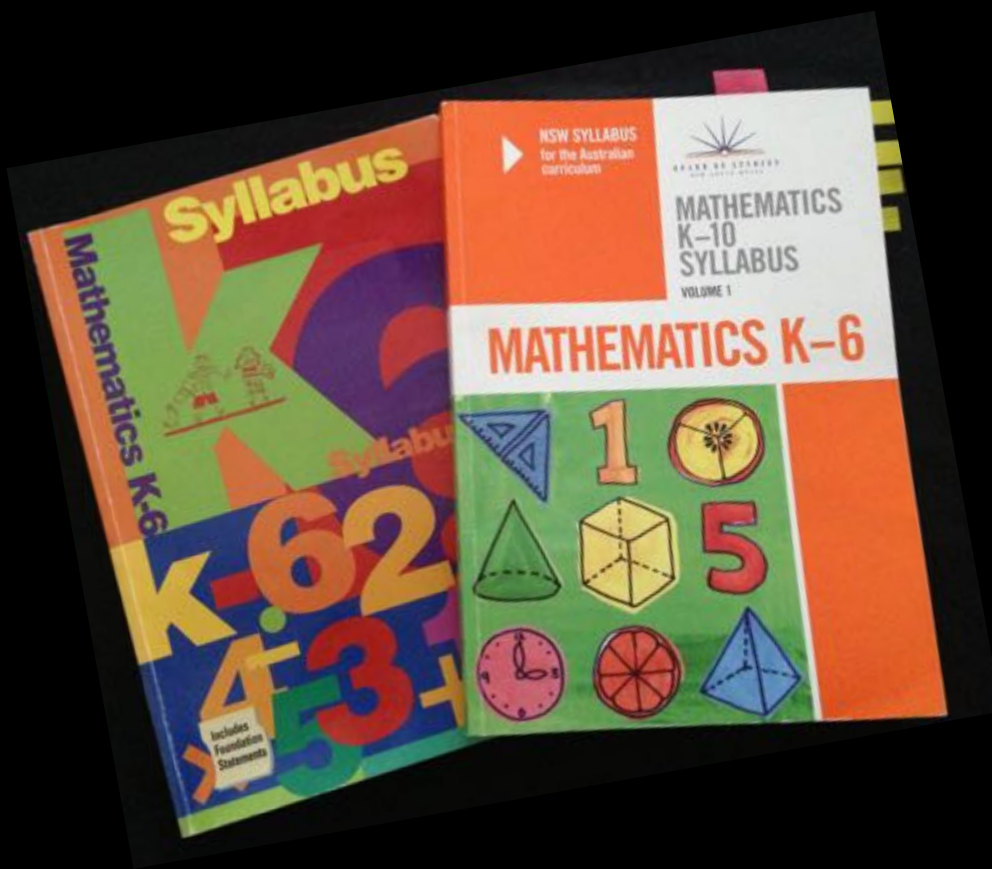
A consistent whole-school approach to equipment | OLPS, West Pymble, NSW | 2010

Managing the Learning Environment



Engaging the whole school

- Teachers who are **excited** about maths!
- Creating **confident** teachers of maths
- Curriculum content **knowledge**



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

<http://syllabus.nesa.nsw.edu.au/mathematics/mathematics-k10>

TEACHER WORD WALL: Multiplication and Division

Big Idea	Early Stage 1 (p.46)	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	area
					thousands	thousands	thousands
					hundreds	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	fraction
					decimal	decimal	decimal
				divide	divide	divide	divide
				divided by	divided by	divided by	divided by
					quotient	quotient	quotient

K-6 language word walls are all available for free from Anita's website

<http://www.anitachinmaths.com.au/language-ww.html>



Engaging the whole school

- Teachers who are **excited** about maths!
- Creating **confident** teachers of maths
- Curriculum content **knowledge**
- Teacher driven **PL**



Educators at Anita's team-based Annual Primary Mathematics Conference 2017

<https://www.youtube.com/watch?v=olPsX9zKbSE>



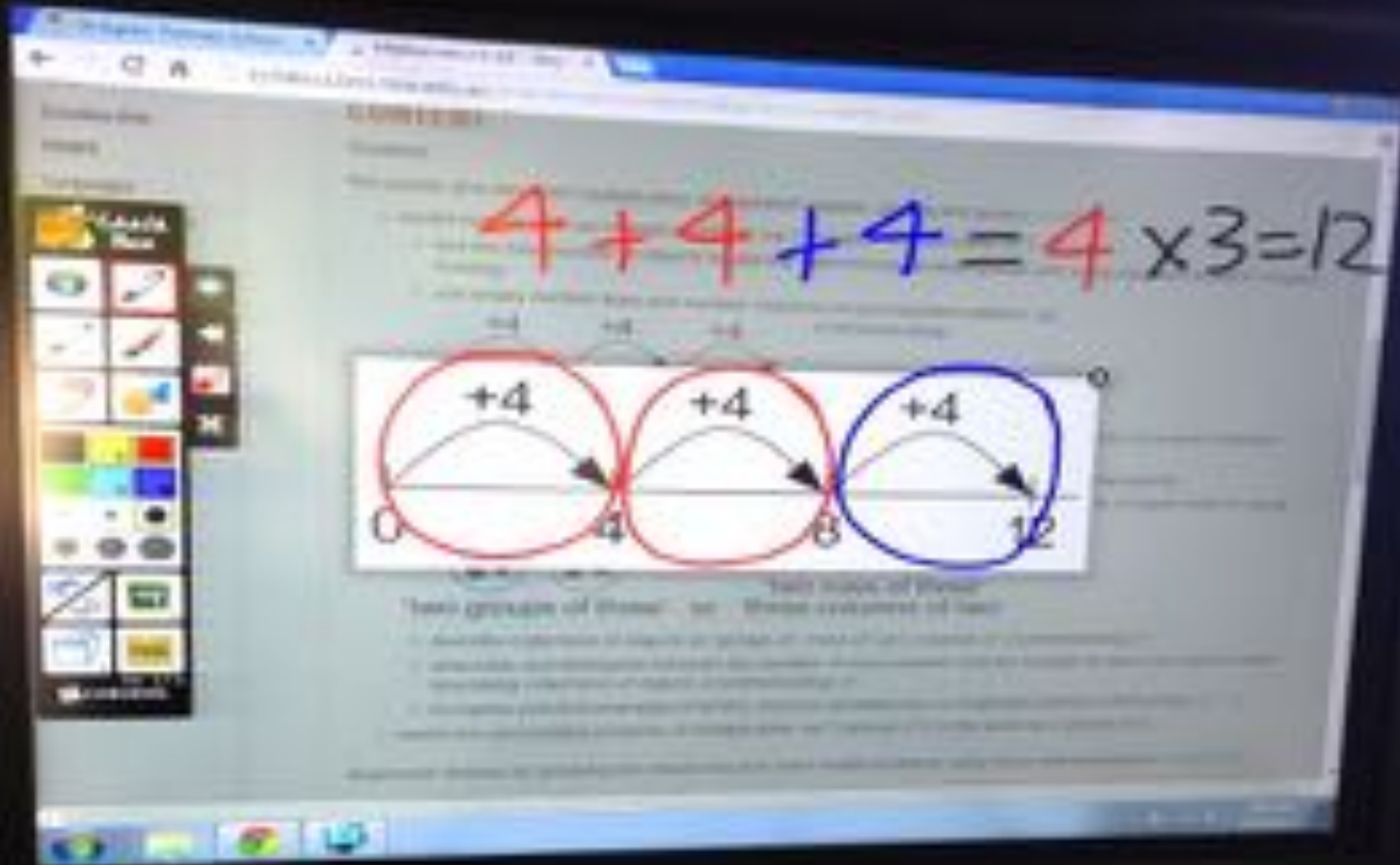
200 primary educators at a Community of Schools SDD with Anita | Gorokan PS | 2017

Engaging the whole child

- Questioning
- Curiosity
- Enquiry

Engaging the Child - Step 1: Questioning

What do you see?



The image shows a digital whiteboard interface with a toolbar on the left. The main content area displays a math problem and its visual representation. At the top, the equation $4 + 4 + 4 = 4 \times 3 = 12$ is written in red and blue. Below this, a number line is shown with points at 0, 4, 8, and 12. Three jumps of size 4 are illustrated with curved arrows: the first two are red and the third is blue. Each jump is labeled "+4".

4 + 4 + 4 = 4 × 3 = 12

0 4 8 12

+4 +4 +4

Two groups of three: or three groups of two

- 1. According to the order of operations, you should do multiplication first.
- 2. According to the order of operations, you should do addition first.
- 3. According to the order of operations, you should do subtraction first.

What do you know about the number 24?

- Chat to your shoulder buddy
- You have ten seconds

What do you know about 24?

(7 year olds)

- It's a big number
- It's someone's age
- $20 + 4 = 24$
- It has a 2 and a 4 in it
- It sounds like 20
- You can write it
- It's an even number
- It's in the 20s
- There's more than one way to write it
- It's higher than 1
- It has 4 and 2 together
- It's after 23
- 12 and 12 is 24
- You can count to it by twos
- It's bigger than 4
- It's between 23 and 25
- $1 + 23 = 24$
- $23 + 1 = 24$



What do you know about 24?

(12 year olds)

- It's the number before 25
- There are 24 hours in a day
- It has two digits
- It has lots of factors
- $2 \times 12 = 24$
- It's an even number
- You can round it to 20
- It features as an answer in the 2, 4, 6, 8 and 12 times tables
- It's a TV show
- It's factors are 1, 2, 3, 4, 6, 8, 12 and 24
- It's equal to two dozen
- It's the number after 23
- $12 + 12 = 24$
- Two 12-volt batteries equal 24 volts
- $6 + 6 + 6 + 6 = 24$
- It's how many people in the class
- It's between two odd numbers
- It can be how much money you have
- Half of 48 is 24
- Double 24 is 48



Engaging the Child - Step 2: Curiosity





1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

FLARE software

(Number Boards) by
ORIGO Education

Information at

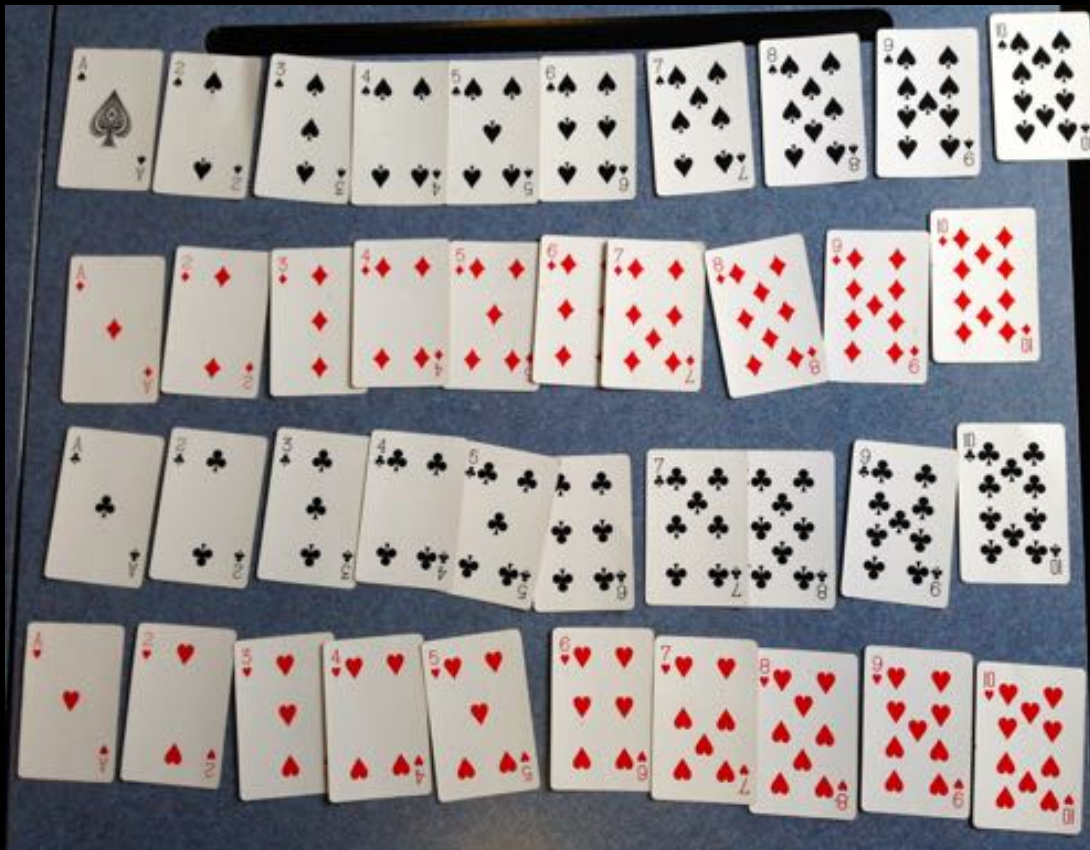
<https://www.origoeducation.com.au/product/flare>



Anita
Chin

Engaging the Child - Step 3: Enquiry

What do you see?



Kindergarten: My One Hundred Numbers



Download Anita's free *Hundreds Chart Jigsaw's K-6 Activity Guide* with BLM's
<http://www.anitachinmaths.com.au/activity-guides.html>

Year 5/6: Multiplication & Division



Falling in Love with Maths: Again and Again

Changing Practice

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

Teacher

The best teachers teach from the heart, not from the book.

Changing Practice

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

The Secret: Team Leaders

- The art of teaching mathematics is complex
- PLT's – talking about actual teaching, not admin
- Listen, model, support your colleagues
- Provide time for new thinking



The Secret: Team Leaders

- The art of teaching mathematics is complex
- PLT's – talking about actual teaching, not admin
- Listen, model, support your colleagues
- Provide time for new thinking
- Step back

Getting There Together

- Deep knowledge is not desirable, it's required
- Whole-school K-8 curriculum knowledge
- Innovative teaching techniques



ANITA CHIN ASTRALVISION DEMONSTRATION

VIMEO.COM | BY A BRIGHTER IMAGE PTY LTD

Watch Anita demonstrating how she teaches directly from the syllabus

<http://www.anitachinmaths.com.au/teaching-with-technology.html>



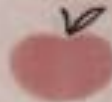
Getting There Together

- Deep knowledge is not desirable, it's required
- Whole-school K-8 curriculum knowledge
- Innovative teaching techniques
- Visual, verbal, and hands-on
- Inspire and delight your students.

Teach. Encourage. *Inspire.*

TEACHERS

change
the world
one lesson
at a time



Anita
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Thank you

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fb www.facebook.com/achinmaths

