

HOW TO  
HAVE

NUMBER  
TALKS

*in the math  
classroom*

PRIMARY 3 - 6

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# about us

We both work at Mitcham Primary School in Mitcham, Victoria

This year our roles are:

Renee – *Numeracy Intervention and Extension Specialist teacher*

Lauren – *Grade 5/6 Classroom Teacher and Numeracy Learning Specialist*

# *in this session...*

Why we chose Number Talks

What are Number Talks compared to Maths Talks

How to run a Number Talk

What is a number string and what they look like in the classroom

What Number Talks look like in the classroom

Selecting Number Talks

Resources

Catering to the junior school

Evidence of impact

Questions

VERY SHORT survey

# number talks



→ As a school, we have good Numeracy NAPLAN Data, however we identified that we could be doing more.

→ A focus for us was to improve Number Sense of our students and boost the profile of the proficiencies in whole school teaching and learning.

→ **Number Talks** are a simple but effective way of achieving this improvement.

# number talk and maths talk

“Classroom conversations around purposefully crafted computation problems that are solved mentally”

(Parrish, p xviii)

“A respectful but engaged conversation in which students can clarify their own thinking and learn from others through talk”

(Chapin, p 5)

# number talks

Number Talks are short discussions among students about how to solve a particular **mental math problem**. The focus is on **all the possible methods** of finding the answer.

Number Talks allow students to use mathematical language skills to explain, explore and build their understanding of foundational mathematics concepts.

“Number sense is caught, not taught!”

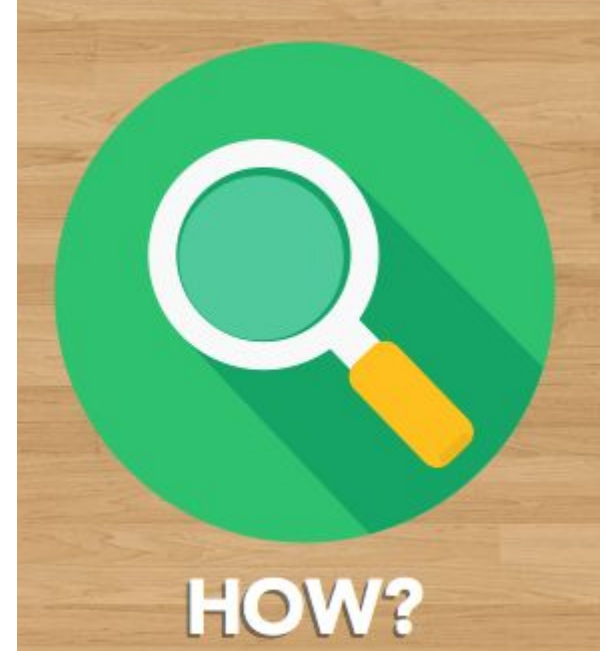
Christina Tondevold, Build Maths Minds





# number talks

- Set up an open and collaborative environment
- Introduce the prompt and start to gather responses
- Allow students to extend their own understanding
- Give everyone time to reflect on the learning



# *the environment*

In a class, this approach involves having students participate in a focused conversation around the whiteboard or any other surface that can help them bring together and expand on the ideas that are developed throughout the conversation.





# *the prompt and responses*

The teacher will ask students to explain their understanding of a prompt, which can be pictographic or numerical.

**Allow students thinking time.**

Teacher asks for answers and records them on the board.

Teacher now **asks for strategies**. If more than one answer, the students state which answer they are defending and explain their method.

Students are able to show that they **agree** with their peers when they have the same strategy.

Students can also make **comments** to their peers.



# showing responses

I am ready and thinking



I have an answer and a strategy



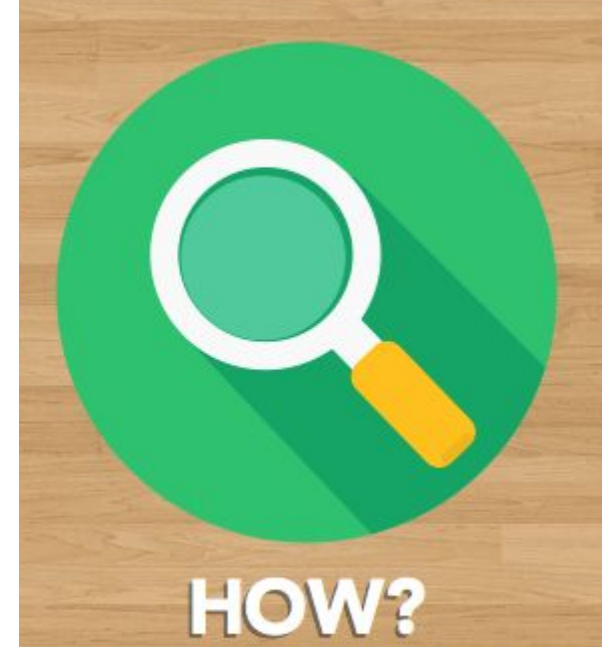
I have another strategy



I agree



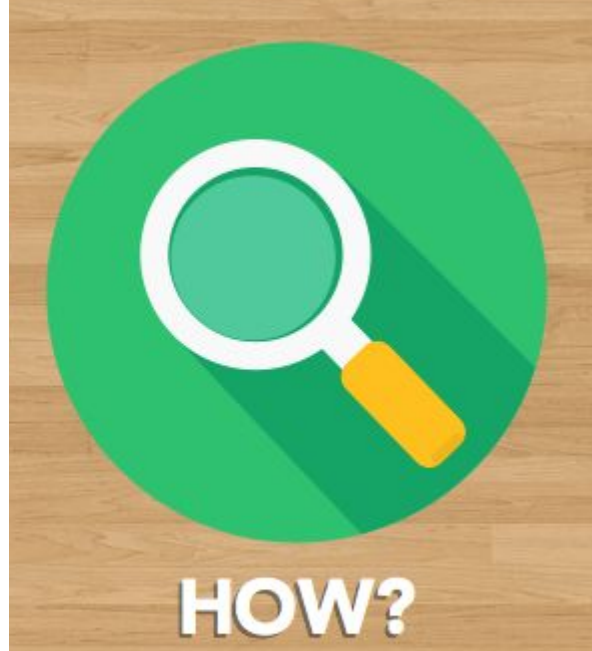
I would like to make a comment



# *extend understanding*

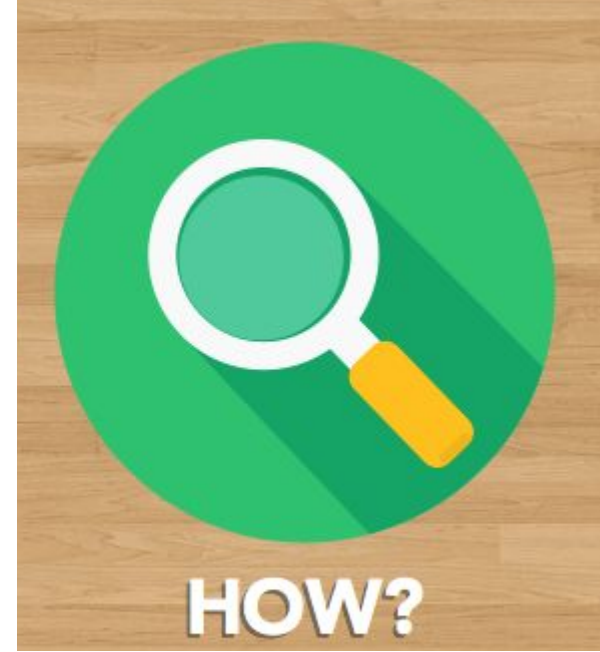
Allow students to extend their own understanding by challenging when they say “I just knew it”.

The students can also look for the most efficient strategy.



# *time to reflect*

Give everyone time to reflect on the learning that they've developed as a **group** by linking back to the strategy and any previous strategies that the students have been exposed to.



# number strings

- Problems are related, one problem can lead into the other.
- Start with a problem you know most students can answer quickly.
- Once unpacked and all the class agrees, then you put up the next problem.
- Then once the second problem is completed, you present the third, which links to the first two.
- The reflection question then becomes...  
“How can you see what you learnt in the first problem to help me solve the second problem.”



*this is what a number string can look like*



number sentences

operations

fractions

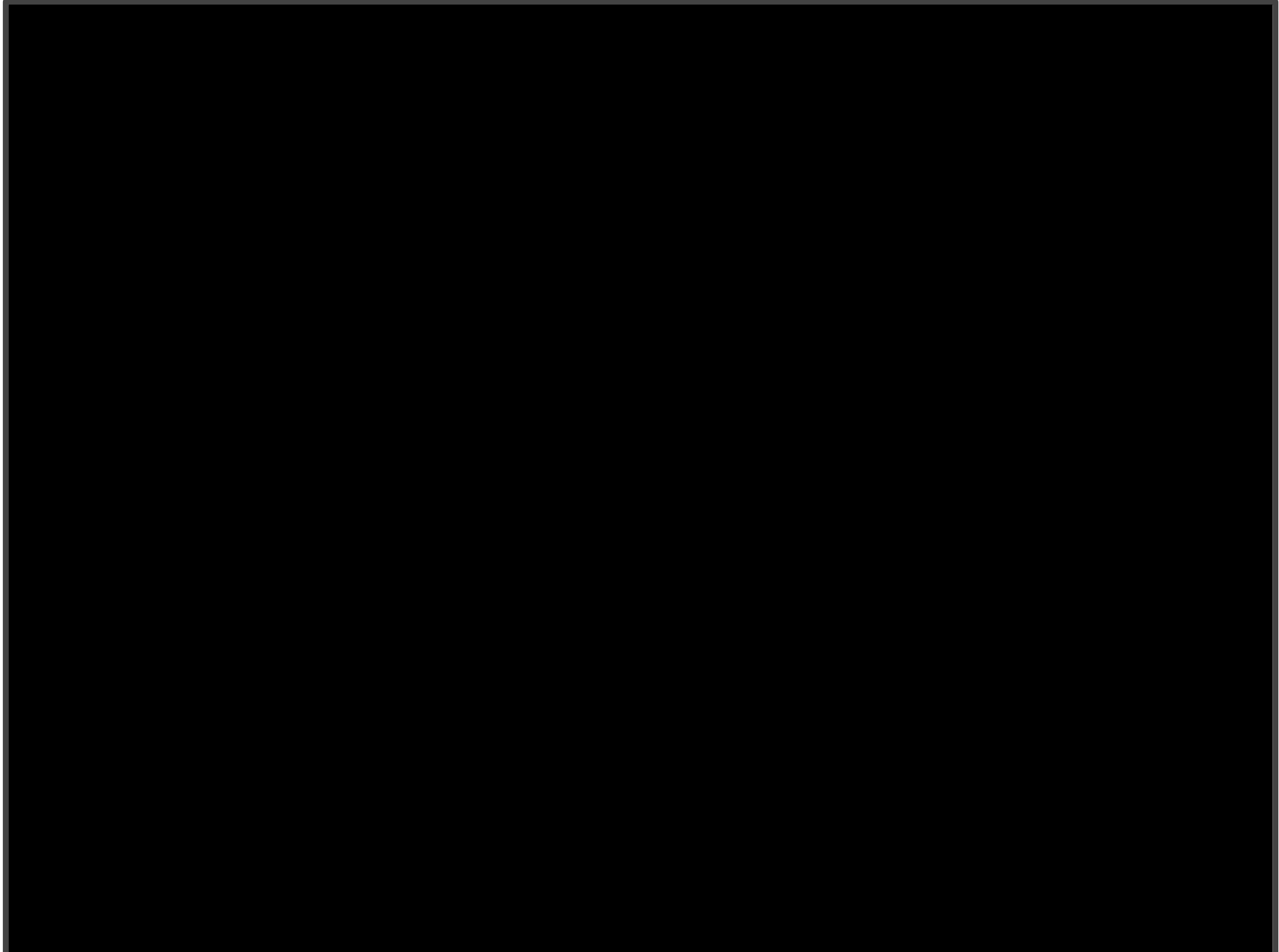
decimals

percentages

negative numbers



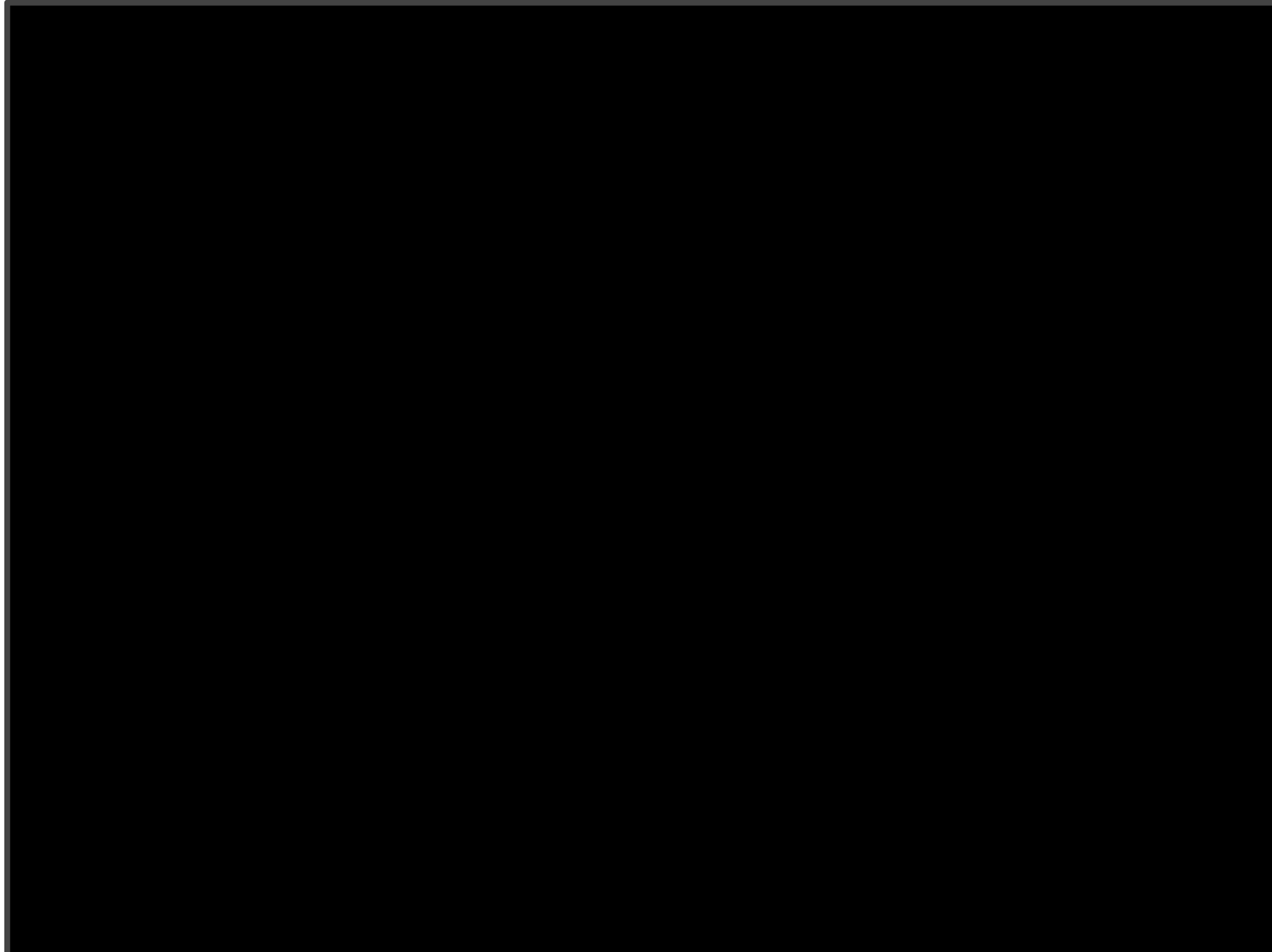
*this is what a number talk can look like*



*do you have a comment?*



*this is what a number talk can look like*  
*in a jiffy!*



# let's try one

1. Present prompt (thinking time).
2. Gauge student responses (thumbs up).
3. Record answers only.
4. Students share strategies and teacher records, asking for clarification where needed. Preferable to use a different colour per response. Students can use the 'me too' gesture to show that they agree or used the same strategy.
5. Close the Number Talk with a quick reflection.





*choosing*

# NUMBER TALKS

*for your students*

A Number Talk should be pitched slightly below the level of the class, to enable students to verbalise their thinking more easily. Number Strings are great ways to reach the different abilities and scaffold the learning for students.

There are specific Number Talks that lend themselves to particular strategies.

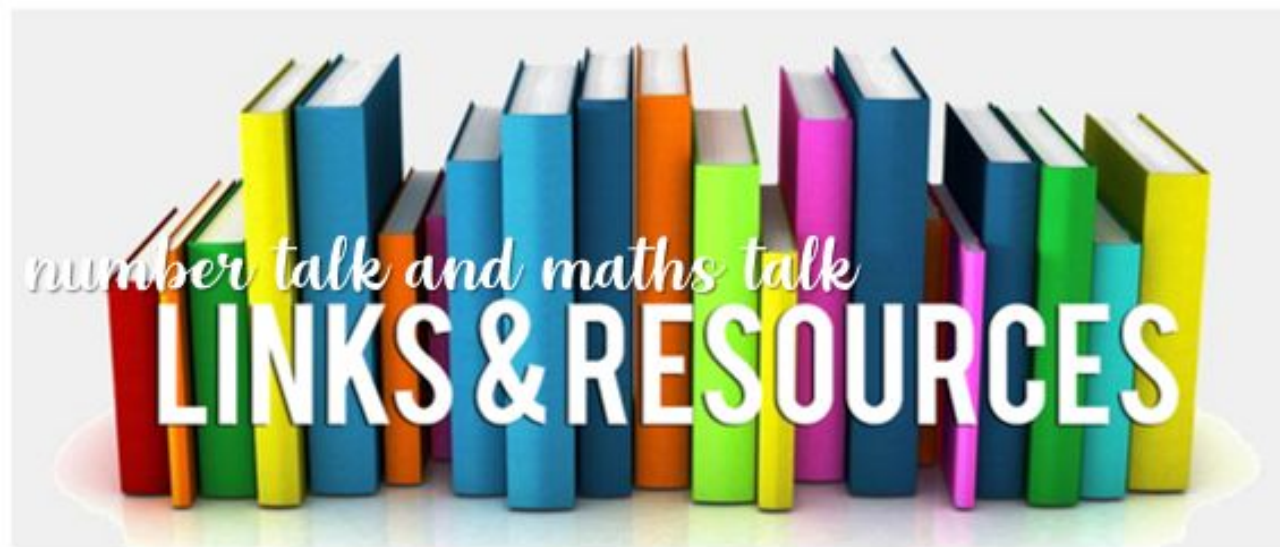
You may spend approximately a week on a strategy, however you may need less or more, depending on the needs of your grade.

MPS has a scope and sequence for our staff. It looks like [this](#).

## Number Talks Scope and Sequence

	Term 1	Term 2	Term 3	Term 4
<b><u>For each year level:</u></b>				
<b>The above rows are for the type/focus of Number Talk and the below rows are the strategies you should be using.</b>				
<b>It is approximately 1 week per strategy, unless you as a teacher, feel that your grade needs more time on a particular strategy.</b>				
<b>3/4</b>	Addition	Multiplication	Subtraction & Division	Revise any strategies that have not yet been covered. <b>THEN</b> Free choice Maths Talks *Instant Multiple Splat *Colour Splat *Instant 2 Colour Splat
	Doubles (+) Near doubles (+) Add up in chunks (+) Place value (+) Compensation (+) Making friendly numbers (+) Make a ten (+)	Friendly numbers (x) Doubling and halving (x) Repeated addition (x) Partial products (x) Breaking factors into smaller factors (x)	Removal (-) Constant difference (-) Adjust one number (-) Place value (-) Repeated subtraction (÷) Partial quotient (÷) Multiplying up (÷)	
<b>5/6</b>	Addition & Multiplication	Subtraction & Division	Fractions, decimals and Percentages	Revise any strategies that have not yet been covered. <b>THEN</b> Free choice Maths Talks *Fraction Splat *Multiple Splat with Fractions *Instant 2 Variable Splat
	Add up in chunks (+) Making friendly numbers (+) Place value (+) Compensation (+) Friendly numbers (x) Doubling and halving (x) Repeated addition (x) Partial products (x) Breaking factors into smaller factors (x)	Removal (-) Constant difference (-) Adjust one number (-) Place value (-) Repeated subtraction (÷) Partial quotient (÷) Multiplying up (÷)	Reasoning (/) Operations (/) Addition/multiplication (.) Subtraction/division (.) Comparing/finding (%) Converting (%) Connecting fractions, decimals and percentages	





## to comb through

[Splat!](#) Steve Wyborney

[Which One Doesn't Belong](#) MTBOS and Christopher Danielson

Number Talks Hand Symbols [TheKellyTeachingFiles](#)  
(TPT)

Number Talks Strategies Posters [All Sorts Of Maths](#)  
(TPT)

Discussion starters/prompts [Hanging with Miss Hulse](#)  
Hulsey (TPT)

## to read

Number Talks Whole Number Computation Grade K – 5  
Sherry Parrish

Number Talks Fractions, Decimals and Percentages  
Sherry Parrish and Ann Dominick

## to watch

Jo Boaler Number Talks  
Sherry Parrish Number Talks

## to follow

Mathematical Number Talks [Facebook](#)



# NUMBER TALKS

*across the whole school*

With Foundation – 2 (and even some Year 3 and 4) students you may use manipulatives to present the Number Talk or to represent their thinking.

Pictorial representation of their thinking is also critical for their level of development.

## *junior focuses and materials*

dots

10 frames

number racks

doubles and near doubles





# NUMBER TALKS

*evidence*

Number Talks is based on Sherry Parrish's extensive research

12 month whole school implementation

**Formatively we have seen:**

- gaps in understanding
- misconceptions about algorithms and traditional written methods
- increased confidence, knowledge and participation in reserved maths learners
- going beyond 'I just knew'
- shift in teacher's role in learning



*thank you!*  
*any questions?*

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# images sourced from:

The Owl teacher - <https://theowlteacher.com/how-to-have-number-talks/>

Exit Bee Blog -

<https://www.google.com/imgres?imgurl=http%3A%2F%2Fblog.exitbee.com%2Fwp-content%2Fuploads%2F2016%2F03%2Fabout-us.jpg&imgrefurl=http%3A%2F%2Fblog.exitbee.com%2Fhow-to-create-an-about-us-page-that-doesnt-suck%2F&docid=ZgSb8RxT4oMCJM&tbnid=iMxRvZNASPADwM%3A&vet=10ahUKEwjf25y3wfrlAhXSTX0KHYYooDlwQMwhkKBIwEg..i&w=3839&h=1745&safe=strict&bih=694&biw=1517&q=about%20us&ved=0ahUKEwjf25y3wfrlAhXSTX0KHYYooDlwQMwhkKBIwEg&iact=mrc&uact=8>

The Physical Educator -

[https://www.google.com/search?q=why&safe=strict&rlz=1C1GGRV\\_enNZ751NZ751&tbs=isz:m&tbm=isch&sxsrf=ACYBGNQyJlzItTEwn-GTBpt70BfMr-CP8Q:1574312458878&source=Int&sa=X&ved=0ahUKEwiAyoH3wvrlAhUUb30KHfCVCTkQpwUIIw&biw=1517&bih=694&dpr=0.9#imgrc=ksmk2YDcZH3TsM:](https://www.google.com/search?q=why&safe=strict&rlz=1C1GGRV_enNZ751NZ751&tbs=isz:m&tbm=isch&sxsrf=ACYBGNQyJlzItTEwn-GTBpt70BfMr-CP8Q:1574312458878&source=Int&sa=X&ved=0ahUKEwiAyoH3wvrlAhUUb30KHfCVCTkQpwUIIw&biw=1517&bih=694&dpr=0.9#imgrc=ksmk2YDcZH3TsM:)

This American Life - <https://www.thisamericanlife.org/88/numbers>

Let the numbers do the talking -

[https://www.google.com/search?q=talking+numbers&safe=strict&rlz=1C1GGRV\\_enNZ751NZ751&tbm=isch&sxsrf=ACYBGNTXBQrdoiCIGkBJpuXUAtnmg3ordw:1574387847085&source=Int&tbs=isz:l&sa=X&ved=0ahUKEwiX0vTi2\\_zlAhXpzjgGHTbkAKoQpwUIJA&biw=1517&bih=694&dpr=0.9#imgrc=aRhoGfN\\_0mYhGM:](https://www.google.com/search?q=talking+numbers&safe=strict&rlz=1C1GGRV_enNZ751NZ751&tbm=isch&sxsrf=ACYBGNTXBQrdoiCIGkBJpuXUAtnmg3ordw:1574387847085&source=Int&tbs=isz:l&sa=X&ved=0ahUKEwiX0vTi2_zlAhXpzjgGHTbkAKoQpwUIJA&biw=1517&bih=694&dpr=0.9#imgrc=aRhoGfN_0mYhGM:)

Cyfe - <https://www.cyfe.com/blog/10-mistakes-preparing-data-analysis/>