



The person in the room doing the talking is doing the learning.

I'm so happy you are getting started with **Number Talks!!** (aka numeracy routines, mathematical discourse)

What is it? Simply a start-of-class routine designed to get kids talking purposefully about mathematics. These tasks are meant to be "low floor, high ceiling" so that everyone can contribute. Lots of them can be extended from very simple to much more complex.

Why?

- For students to show proficiency at an outcome in math they also have to "explain", "justify", apply strategies, show flexible reasoning, and prove their results. They can't do this if we don't give them opportunities to practice.
- Learners consolidate their reasoning and understanding by communicating. We use our brains differently when we talk.
- Students learn from each other as they expose their ideas, reasoning, and strategies. This is exponentially more effective than just showing kids strategies! "Strategies aren't taught, they're caught." -Christina Tondevold
- Our curriculum outlines the Mathematical Processes as the way we "do" math. These processes must be embedded in our teaching and learning:
- Communication [C] Connections [CN] Visualizing [V] Reasoning and Representing [R] and Mental Math and Estimation [ME] You can see how number talks really hits all of these!

Here's a couple great websites that explains more:

<http://www.meaningfulmathmoments.com/number-talks.html>

<https://www.sfusdmath.org/math-talks-resources.html>

Big Ideas

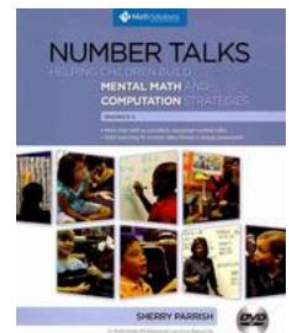
Kids need to be able to:

1. **compose and decompose numbers** (take them apart and put them back together)
2. choose and apply **strategies**, and recognize efficient strategies
3. justify their **reasoning**
4. **explain** their reasoning
5. see and use **multiple models**: ten frames, number racks (rekenreks), number lines, open number lines, part-part-whole models, base ten blocks, and algorithms.

Mathematics Grade 7 Number (N)				
Outcome	1 – Little Evidence With help, I understand parts of the simpler ideas and do a few of the simpler skills.	2 – Partial Evidence I understand the simpler ideas and can do the simpler skills. I am working on the more complex ideas and skills.	3 – Sufficient Evidence I understand the more complex ideas and can master the complex skills that are taught in class. I achieve the outcome.	4- Extensive Evidence I have a deep understanding of the complex ideas, and I can use the skills I have learned in situations that were not taught in class.
N7.3 I can demonstrate an understanding of the relationships between positive decimals, positive fractions (including mixed numbers, proper fractions and improper fractions), and whole numbers. [C, CN, ME, R, T]	With help, I can order a set of a few numbers containing a few types of positive fractions, positive decimals and whole numbers.	I can order a set of a few numbers containing a few types of positive fractions, positive decimals and whole numbers.	I can order a set of several numbers containing all types of positive fractions, positive decimals, and whole numbers, and explain my reasoning.	I can order a set of numbers containing all types of positive fractions, positive decimals, and whole numbers in a multi-step problem.
	With help, I can match a set of simple fractions to their decimal partners.	I can match a set of fractions to their decimal partners.	I can express a fraction as a decimal and a decimal as a fraction.	I can represent and explain how fractions, decimals, and division are related.

You can see that to be at grade level, students need to choose and apply strategies, *justify thinking*, use mathematical language etc. Number talks gives us an opportunity to practice these skills.

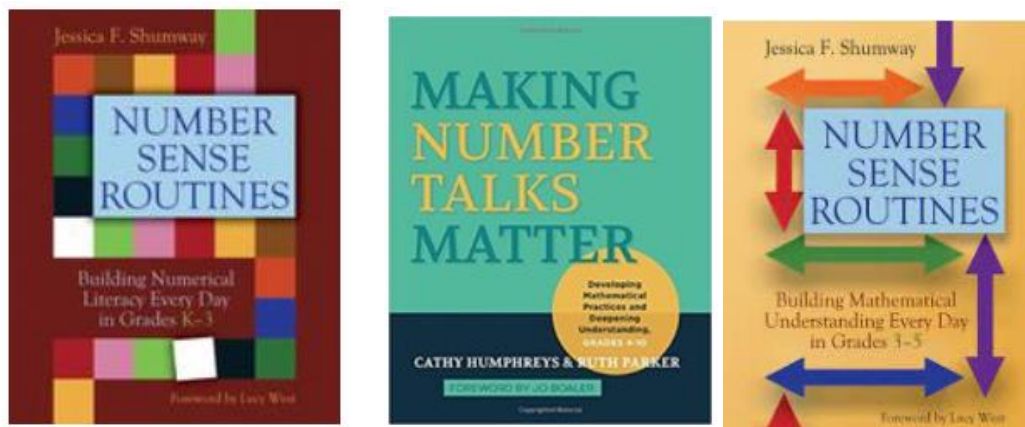
1. Number Talks – The book. Sherry Parrish, author
This would be the one at your grade level.
Check availability at CTCS Central Library (Division Office)



Here's the link to the book on Amazon.

https://www.amazon.ca/Number-Talks-Computation-Parrish-2014-03-01/dp/B00M0PLFS4/ref=sr_1_3?dchild=1&keywords=number+talks&qid=1632515467&sr=8-3

Peter Liljedahl's research showed that "within a 60-minute lesson, 20% of students spent 8–12 minutes thinking, while 80% spent zero minutes thinking. This is a problem. This is what has been missing. Thinking is a necessary precursor to learning, and if students are not thinking, they are not learning."-Peter Liljedahl



Here is a [small article](#) that gets you started ...and several other things you can use.

2. Web Resources:

Maze Hundreds Chart (downloads as a powerpoint. Remember even though its one slide you have to play the slideshow for it to work.)

<https://stevevyborney.com/2016/10/the-maze-hundreds-chart/>

SPLAT <https://stevevyborney.com/2018/09/splat-for-google-slides-40-lessons/>

Again, these will load as Powerpoints, and they work if you hit "play slide show"

Which One Doesn't Belong <https://wodb.ca/>

I would copy and paste this on to the Smartboard/Viewboard so you can draw on it as kids explain their reasoning.

Estimysteries

<https://stevevyborney.com/2019/09/51-esti-mysteries/>

Number Strings for Grade 2

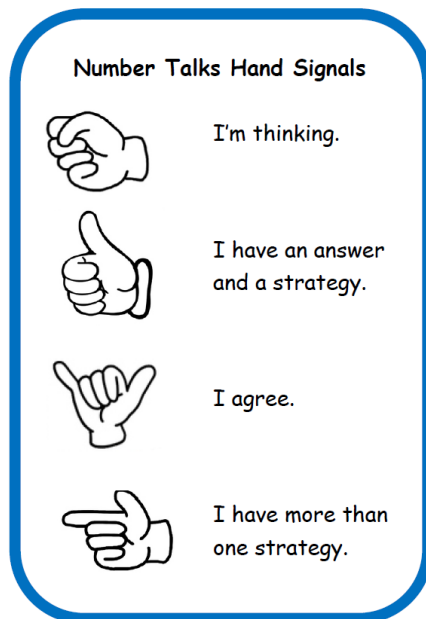
<https://hcpss.instructure.com/courses/106/pages/number-strings>

The video here is good, and so is the book that is shown!

<https://nrich.maths.org/14005>

<https://www.primaryblissteaching.com/5-number-talks-to-try-this-week-2/>
<https://howweteach.com/mathtalks/>

3. Here's a poster with the "hand signals". By the way, you don't have to use these just for number talks!



Hope this helps get you started! Start small. Try 10 minutes, see how it goes. Have fun!
-Cindy

Even more:

<https://mathforlove.com/lesson/number-talks/> Has links to other sites with number talk ideas

For high school <https://www.saravanderwerf.com/secondary-number-talks-ill-convince-you-with-ducks/>

Amazing site with printable strategy posters and talking stems
<https://www.k-5mathteachingresources.com/number-talks.html>