

Building Numerical Reasoning with Number Talks

Randi Womack
GRREC Math Consultant

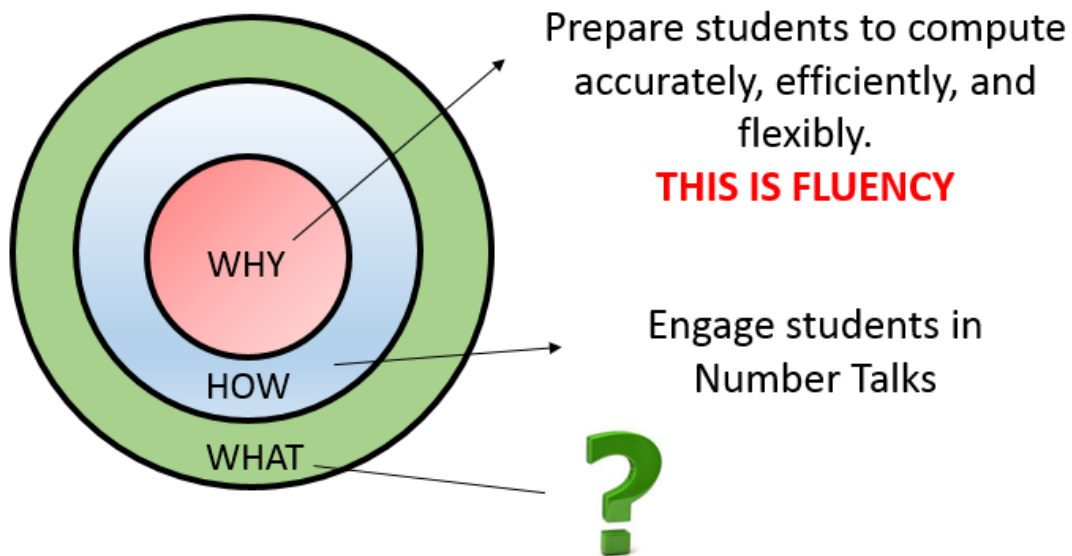
randi.womack@grrec.org

rebecca.gaddie@grrec.org



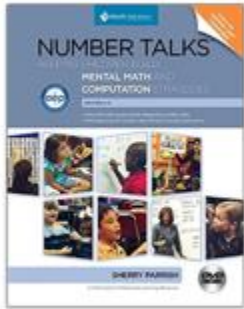
What is number sense?

Video Source: <https://www.youcubed.org/what-is-number-sense/>

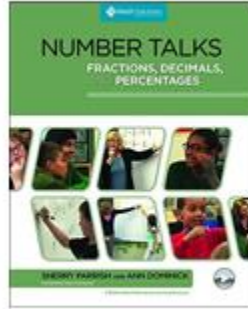


Adapted from Simon Sinek's Golden Circle

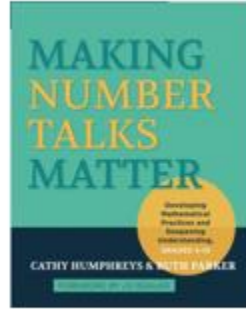
Book Resources



K-5



3-6



4-10

What is a Number Talk?



What is my role?

What is my students' role?

Mental Solutions

Anticipate all of the ways students may mentally solve these. How might you record that thinking?

$$25 + 36$$

$$15 \times 6$$

Number Strings

Source: <https://numberstrings.com/>

What relationships or big ideas might students discover with these strings?

$9 + 1$	$\frac{1}{4}$ of 8
$9 + 3$	$\frac{2}{4}$ of 8
$9 + 5$	$\frac{3}{4}$ of 8
$9 + 7$	$\frac{4}{4}$ of 8
2×7	$\frac{5}{4}$ of 8
4×7	$\frac{6}{4}$ of 8
3×7	$\frac{7}{4}$ of 8
7×7	$\frac{8}{4}$ of 8

Number Talk Video: 16 + 15

Video Source: <https://www.youtube.com/watch?v=SPEfxPqZJy4>

What do you see happening?

What do you notice the students are saying/doing?

What do you notice the teacher is saying/doing?

What is surprising? Familiar?

What questions do you have?

The Essentials to Getting Number Talks Started

1. Classroom Space
2. Start with Problems That _____ and That Elicit Multiple Perspectives

How many dots do you see?



Whole Number Computation

$$56 + 57 \quad 4 \times 7$$

$$20 - 14 \quad 40 \div 4$$

3. Insist on _____

4. Provide Adequate Wait Time

Silent Signals



I have an answer and a strategy.



I have the answer and more than one strategy.



I agree with...

5. Accept, Respect, and Consider All Answers

*Keep a _____ face!

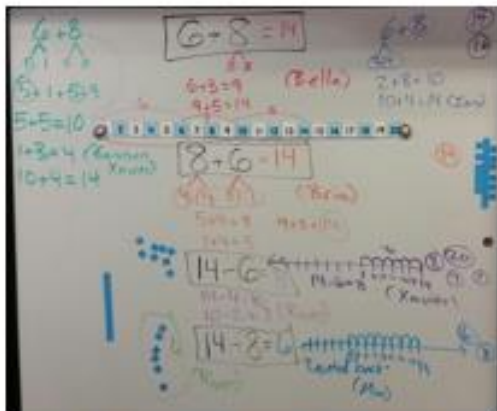
6. Encourage _____

Sentence Starters

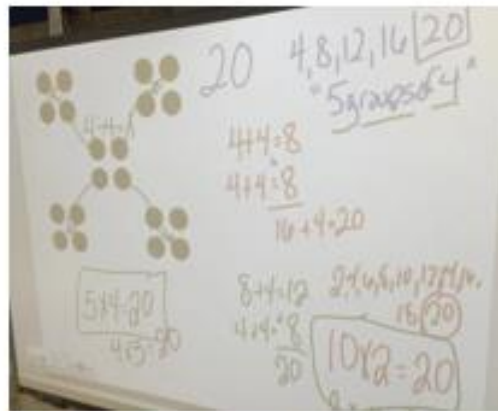
- I wondered about...
- I agree with _____ about...
- I have another opinion. OR In my opinion...
- Could you say more about that?
- I have something to add.
- What do you mean when you say...
- Can you prove that...
- Your strategy reminds me of...
- What would happen if...



7. Record Strategies to Make Student Thinking Public



<http://www.elementarymathaddict.com/>



<https://kgmathminds.com/tag/3rd-grade/>

Record Strategies to Make the Math Visible

*For your practice...

- Anticipate how students will respond to the problem.
- Record all the possible ways.
- As you record student thinking, make sure your notation is mathematically correct. *One symbol to watch carefully is the equal sign.*
- Consider recording student thinking from left to right.
- Label each recording with student's name.

8. Prepare When Strategies May _____

- Share a small part of a strategy you might have heard from another student.
 - “What do you think about this student’s way of solving?”
 - “Will it always work?”
- It’s okay to put a student’s strategy on the back burner.

9. Limit Your Number Talks to Five to Fifteen Minutes

10. Be Patient with Yourself and Your Students

Some Number Talk Online Resources

Learn more about Number Talks

<https://www.youcubed.org/from-stanford-onlines-how-to-learn-math-for-teachers-and-parents-number-talks/>

http://www.mathsolutions.com/documents/numbertalks_sparrish.pdf

<https://kgmathminds.com/category/math/number-talks/>

Number Talk Ideas for Everyone

<https://elementarynumbertalks.wordpress.com/>

<https://numberstrings.com/>

<http://ntimages.weebly.com/>

<http://www.mathtalks.net/teachers.html>

<http://www.insidemathematics.org/classroom-videos/number-talks>

Middle/High School Specific

<https://saravanderwerf.com/2016/06/27/secondary-number-talks-ill-convince-you-with-ducks/>

http://www.svmimac.org/images/Cristo_Rey_-_Middle_Level_Bank.pdf