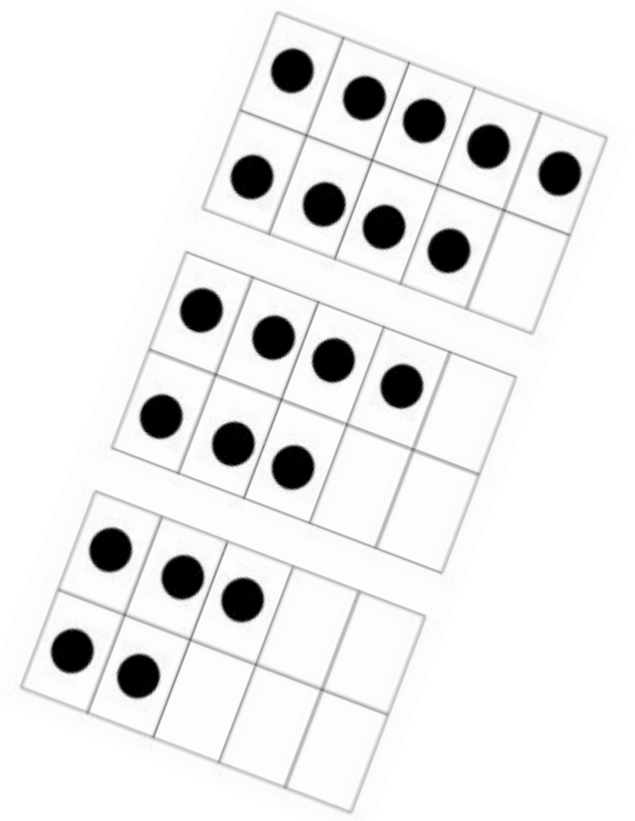
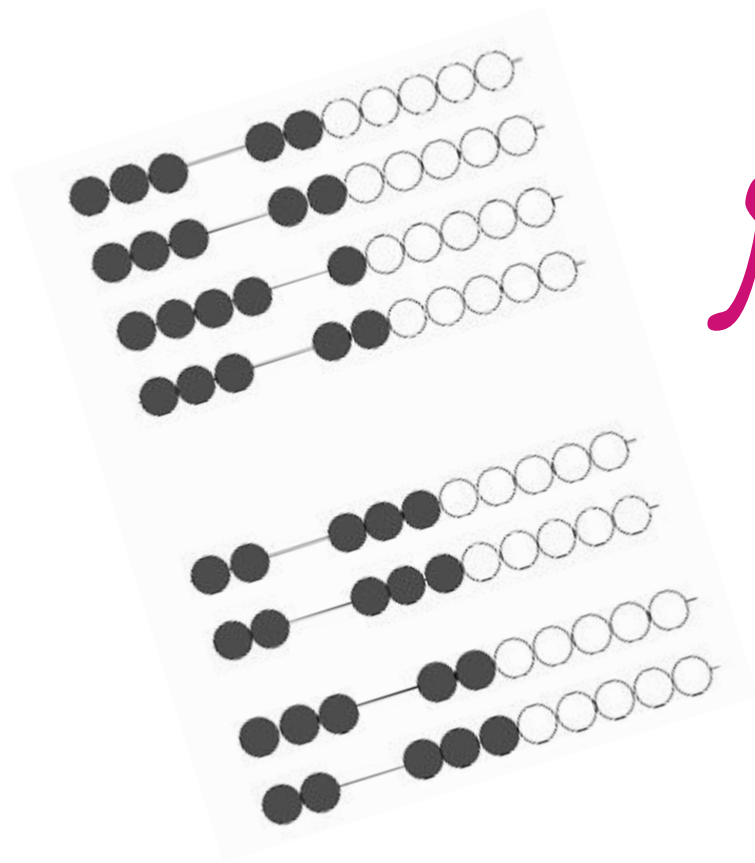


Building *Number Relationships* Through *Number Strings*



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Number Talk vs Number String



Tracy Johnston Zager @TracyZager · Apr 15

Sets, contexts, models essential elements of number strings. #NCSM15

@jdlbrienza @mathematize4all

SO...WHAT'S THE DIFFERENCE?

NUMBER TALK	NUMBER STRING
Can be a single problem	Always multiple problems developed as a sequence
Teacher represents thinking of students	Teacher represents thinking of students, almost always involves a model and often a context
Multiple strategies discussed	Multiple strategies discussed

Go [HERE](#) to get a more detailed description of the difference

Overview of Number Talks/Strings

Number Talks are class meetings in which the teacher poses purposeful problems. Students are asked to engage in conversations about the problems by discussing strategies that are meaningful to them.

Number talks help develop the three aspects of computational fluency: Accuracy, Efficiency, and Flexibility. Students are expected to reason about the structure of the numbers and look for relationships before going straight to computation. Having the students do the math mentally, encourages them to use flexible strategies to help find an efficient way to get to the correct answer.

Guidelines for Doing Number Talks/Strings

- Keep it short, 5-10 minutes at most.
- Mental Math only, no paper or whiteboards
- Focus on the students' strategies, not on the strategy you are hoping they do.
- Notate the student strategies after they have described it. Try to ensure that how you notate the strategy ties back to the original problem.

More Resources

- [Number Talks Overview](#)
- [Number Talks Description and Planning Sheets](#)
- Teacher created [Number Strings](#)
- [Number Talks](#) book by Sherry Parrish
- [Making Number Talks Matter](#) by Cathy Humphreys and Ruth Parker

The 4 Number Relationships

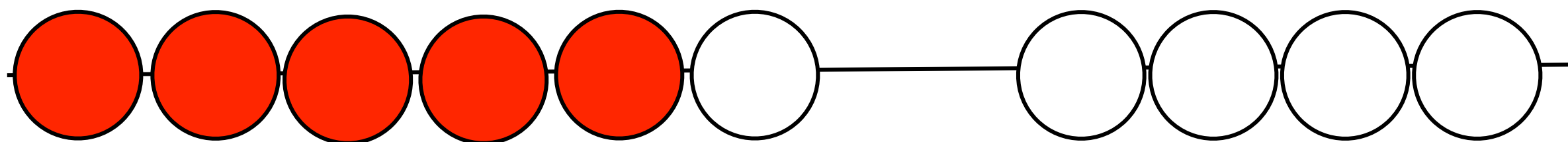
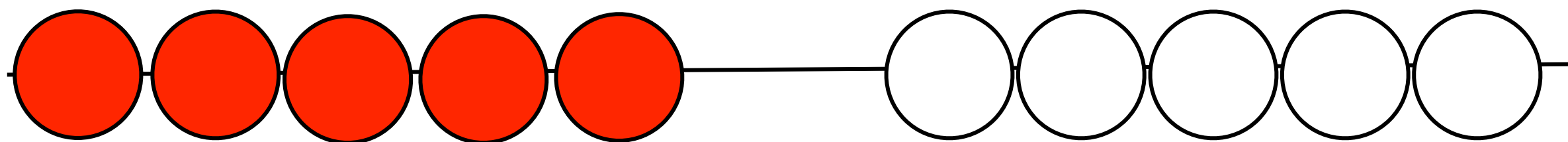
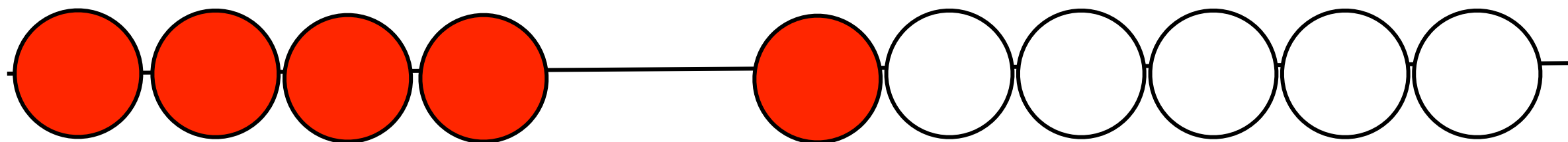
Howden (1989) makes reference to the number relationships in the quote “*a good intuition about number and their relationships.*” So what exactly does that look like? What are those relationships? I wanted it laid out for me. What is it that children who have number sense understand about numbers compared to children who do not have number sense? After years of trying to figure it out, I found the answer in John Van de Walle’s book *Teaching Student Centered Mathematics K-3* (2006). I originally read the book in 2007 (there was a new version released in 2014) and when I came across these four number relationships mentioned in the book, a lightbulb came on for me:

1. **Spatial relationships** – recognizing how many without counting by seeing a visual pattern and understanding relationships between visuals.
2. **One and two more, one and two less** – this is not the ability to count on two or count back two, but instead knowing which numbers are one and two less or more than any given number.
3. **Benchmarks of 5 and 10** – ten plays such an important role in our number system (and two fives make up 10), children must know how numbers relate to 5 and 10.
4. **Part-Part-Whole** – seeing a number as being made up of two or more parts.

At first I did not understand the full value of these four relationships and especially why we needed to develop them with small numbers. It was not until I started working with PreK-2 children around these four relationships that I realized this was the number sense that some kids were lacking. These relationships may seem trivial, even unimportant. However, if children do not have these four understandings around small numbers it affects their flexibility, and without flexibility they will not become truly fluent.

These number strings use visuals that help build **Spatial Relationships**, with an emphasis on **Benchmarks of 5 & 10** because the visuals are of structured manipulatives (ten frames & rekenreks).

Some of the strings were created to also develop **One/Two More & Less** and some develop **Part-Part-Whole**



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