USING NUMBER TALKS TO TRANSFORM INSTRUCTIONAL PRACTICE

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SESSION GOALS

- Learn about Number Talks
- Examine some of the benefits of using Number Talks
- Share resources about Number Talks
- Examine the impact of Number Talks on teaching practices

MY EXPERIENCES USING NUMBER TALKS

- SEE-MATH – Summers 2014, 2015, 2016, and 2017(upcoming) – Elementary Teachers
- ITQ Summer 2015 and 2017(upcoming) – Middle School Teachers
- Graduate Students – Mix of Elementary, Middle, and High School Teachers
- Traditional Undergraduates Enrolled in Algebra, Geometry, and Calculus
- Lipscomb's College of Education Faculty
- Elementary and Secondary Math Methods

WHAT IS A NUMBER TALK?

A Number talk is a five to fifteen minute classroom conversation around purposefully crafted problems that are solved mentally (Parrish & Dominick, 2016).

WHAT HAPPENS DURING A NUMBER TALK (HUMPHREYS & PARKER, 2015)?

- Students put paper and pencils away.
- The teacher presents a problem on the board.
- The teacher gives students time to mentally solve the problem.

WHAT HAPPENS DURING A NUMBER TALK (HUMPHREYS & PARKER, 2015)?

- The teacher observes the students while they solve the problem mentally and the students put their thumbs up when they have had enough time to think.

WHAT HAPPENS DURING A NUMBER TALK (HUMPHREYS & PARKER, 2015)?

- The teacher asks if anyone is willing to share their answer.
- The teacher records the answer on the board and asks if anyone got a different answer.

WHAT HAPPENS DURING A NUMBER TALK (HUMPHREYS & PARKER, 2015)?

- The teacher asks if anyone can explain how he or she figured the problem out.
- When volunteers begin to share their strategies, they first identify which answer they are defending.

WHAT HAPPENS DURING A NUMBER TALK (HUMPHREYS & PARKER, 2015)?

- The teacher records the student's thinking, labeling the work with the student's name.

- After a student shares a strategy, there are several things a teacher might ask in order to work with that student's thinking.

SOME EXAMPLES

- https://www.youtube.com/watch?v=62epCIFdRa0&index=6&list=PLCCX_dMEXqT0cKyJTUV4PgxLKFVUadsfU
- https://www.youtube.com/watch?v=SPEfxPgZJy4&list=PLCCX_dMEXqT0cKyJTUV4PgxLKFVUadsfU&index=8
- http://fast.wistia.net/embed/iframe/18rd54krww?autoPlay=true&controlsVisibleOnLoad=true&popover=true&version=v1&videoHeight=360&videoWidth=640&volumeControl=true

WHY NUMBER TALKS?

- Number Talks provide students with opportunities to:
- **change their views of mathematics**,
- **develop mental math skills and computation strategies**,
- **develop number sense** (the basis for all higher-level mathematics),
- **engage** in **creative**, **open** mathematics (Humphreys & Parker, 2015).

WHY NUMBER TALKS?

The strategies students learn during number talks with whole number computation are transferable to arithmetic with decimals, fractions, and the integers!

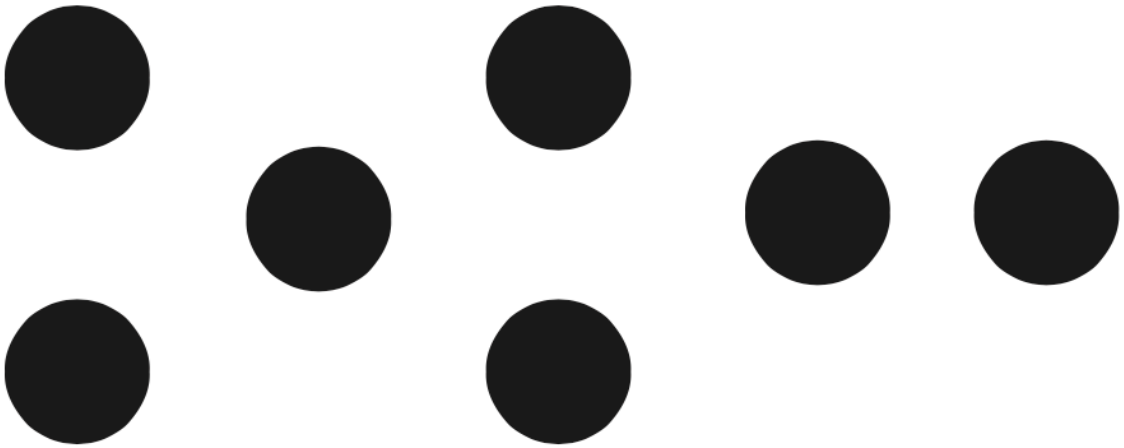
LET'S LOOK AT SUBTRACTION (USE THE STRATEGY OF ADDING UP)

- 63 – 28
- 1.03 - .96
- 3 1/4 – 1 ¾
- 5 – (-3)

Note: Normally a number talk encourages students to use any strategy. The point of us using the adding up strategy is to show how dynamic our strategies can be.

NUMBER TALK IDEAS

Dot Cards – How many do you see?



Dot Images with the Number 7 • String 4C

From *Number Talks: Reproducibles* by Sherry Parrish (Scholastic Inc), www.mathsolutions.com

NUMBER TALK IDEAS

Double or Halve a Number

- Double 46

NUMBER TALK IDEAS

Arithmetic

- What is ¾ of 16?

NUMBER TALK IDEAS

Arithmetic in Context

- I had 16 brownies in a pan. If my friends ate ¾ of the brownies, how many brownies are left?

NUMBER TALK IDEAS

Ordering Numbers on the Number Line

- 5, 11, 10, 1, 6
- 1, ½, ¼ ¾, 0, 1/8, 6/8

NUMBER TALK IDEAS

Where is the decimal point?

- 11.5 x 4.4 = 506

NUMBER TALK IDEAS

Estimate

- What is 9/26 of 15?

NUMBER TALK IDEAS

More or Less

- Is 5/9 more or less than ½?

NUMBER TALK IDEAS

Closer to…

- Is 13/32 closer to 0, ½, or 1?

NUMBER TALK IDEAS

True/False Equations

- 22 + 18 = 20 + 20;
- 80/4 = 80/2 + 80/2;
- 7 x 8 = (7 x 5) + (7 x 3);
- ½ = 2/4;

NUMBER TALK RESOURCES

Books

Making Number talks Matter: Developing Mathematical Practices and Deepening Understanding Grades 4 – 10 by Cathy Humphreys and Ruth Parker

Number Talks: Helping Children Build Mental Math and Computation Strategies Grades K – 5 by Sherry Parrish

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

www.tedd.org

https://www.youcubed.org/category/teaching-ideas/number-sense/

NUMBER TALKS TRANSFORM TEACHING PRACTICES…

- Number Talks are high yield tasks – Teachers (preservice or inservice) that study Number Talks are going to study a lot of good teaching ideas including:
- Facilitating meaningful mathematical discussions
- Posing purposeful questions
- Building procedural fluency from conceptual understanding
- Elicit and use student thinking

TEACHERS' RESPONSES

- I asked our SEE-MATH teachers to share their experiences with number talks since learning about them.
- I asked them to include any additional topics of study that they chose to pursue to help them with number talks.
- I asked them if they had noticed any changes in their teaching practices since learning about number talks.

TEACHERS' RESPONSES

- "I am taking more input from students, expanding on their prior knowledge, and prior vocabularies. I am encouraging students to prove their theories in other subjects and lessons in general."

- "I have researched different strategies to help my students learn multiple ways of finding the answer and explain why it works."

TEACHERS' RESPONSES

- "I am trying to be more deliberate with my questioning and allowing students to explain and expand upon their answers."
- "My math lessons are more flexible. My students talk a lot and explore their own learning. They have surprised me with their mathematical thinking."
- "I did (study) a lot on accountable talk. The accountable talk was essential to allowing other students to talk/critique other students' work."

QUESTIONS OR COMMENTS

- Please feel free to contact me by e-mail at banesbc@lipscomb.edu

BIBLIOGRAPHY

- Humphreys, C. & Parker, R. (2015). *Making number talks matter: Developing mathematical practices and deepening understanding grades 4 – 10. Stenhouse, Portland: MA.*

- *Parrish, S. (2010). Number talks: Helping children build mental math and computation strategies grades K – 5. Math Solutions, Sausalito: CA.*

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