

Number Talks: First Grade

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Based on *Number Talks* by Sherry Parrish, Math Solutions 2010

Overview

Number Talks is a ten-minute classroom routine included in this year's Scope and Sequence. Kindergarten through fifth grade teachers will facilitate Number Talks with all students three days a week.

Number Talks are designed to support proficiency with grade level fluency standards. The goal of Number Talks is for students to compute accurately, efficiently, and flexibly. This includes fluency with single-digit combinations in addition, subtraction, multiplication and division as well as procedural fluency with two or multi digit numbers.

In addition to developing efficient computation strategies, Number Talks encourages students to make sense of mathematics, be able to communicate mathematically, and reason and prove solutions.

The key components of successful Number Talks:

- ***A safe and accepting classroom environment and mathematical community***
- ***Classroom discussions (PROTOCOL)***
 1. Teacher provides the problem.
 2. Teacher provides students opportunity to solve problem mentally.
 3. Students show a visual cue when they are ready with a solution. Students signal if they have solved it in more than one way too. (Quiet form of acknowledgement allows time for students to think, while the process continues to challenge those that are already have an answer)
 4. Teacher calls for answers. S/he collects all answers- correct and incorrect- and records answers.
 5. Students share strategies and justifications with peers.
- ***The teacher's role as a "facilitator, questioner, listener, and learner"***
- ***Use of mental math to increase efficiency and knowledge of number relationships***
- ***Purposeful computation problems that support mathematical goals in number and operations***

The following ten-frames number talks are each designed to be used in a single session, in any order. Frames number talks consist of three to five problems, each sequentially labeled A, B, C, and so on. The sequence of problems within a given number talk allows students to apply the strategies from previous problems to subsequent problems.

Number Talks: First Grade

First Grade Number Talks

Addition Number Talks

Number talks at the first-grade level are designed to provide students with opportunities to continue to build fluency with numbers up to ten and develop beginning addition strategies. Dot images, and five- and ten-frames may be used during number talks to provide a context for reasoning with numbers. When using these tools, recording expressions and equations to match student thinking is often helps students link a visual model with a numerical one and develop flexibility with combinations. For example, after showing the student a dot image and asking “How many dots do you see?”, you can connect the child’s thinking to a number sentence by circling the dot arrangement the child describes and writing a correlating number sentence.

The following first-grade number talks are organized by common addition strategies and tools. Initial subtraction strategies are also included.

Addition: Counting All/Counting On: Dot Images

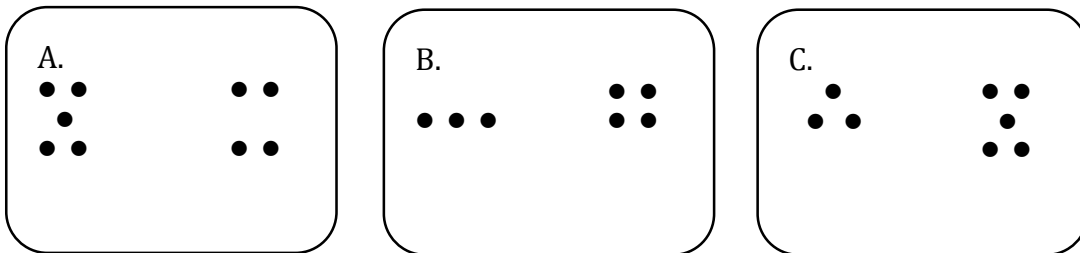
The following dot image number talks are each designed to be used in a single session, in any order. Dot image number talks consist of three to five problems, each sequentially labeled A, B, C, and so on. The sequence of problems within a given number talk allows students to apply the strategies from previous problems to subsequent problems. As each problem is shown, ask students, “How many dots do you see? How do you see them?”

Note that using two sets of dot images for each number talk provides an opportunity for students to unitize one quantity and count on.

Counting All/Counts On: Dot Images

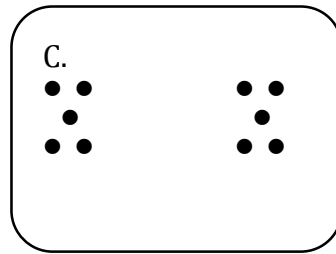
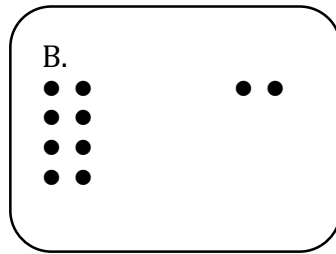
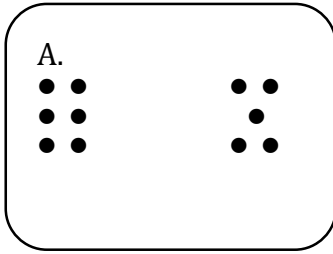
As each number talk is shown, ask students, “How many dots do you see? How do you see them?”

String

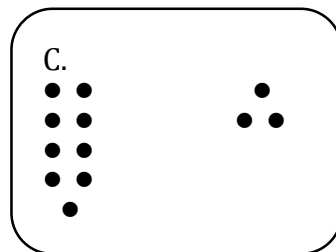
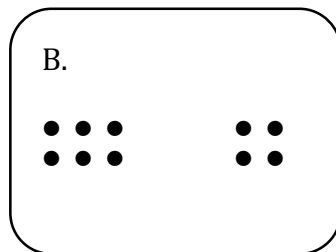
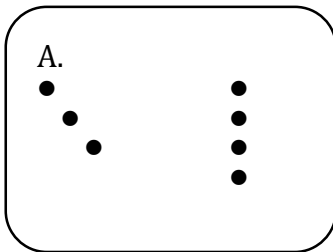


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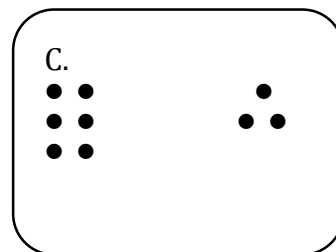
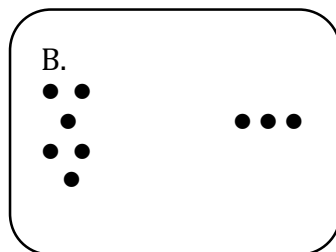
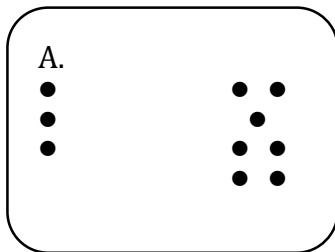
Number Talks: First Grade



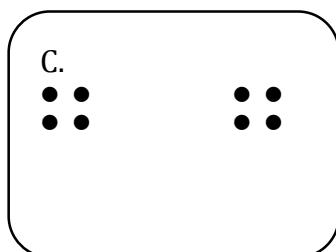
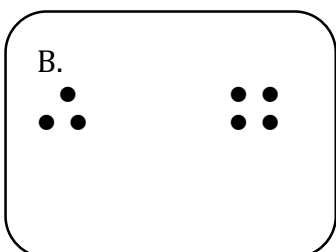
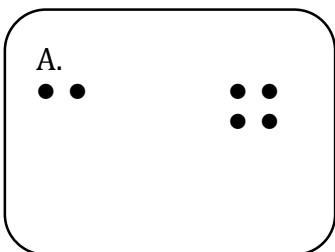
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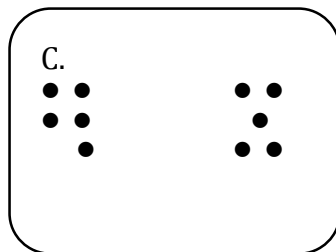
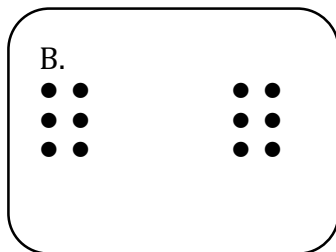
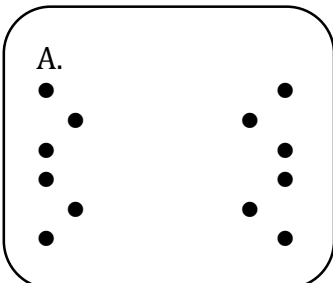
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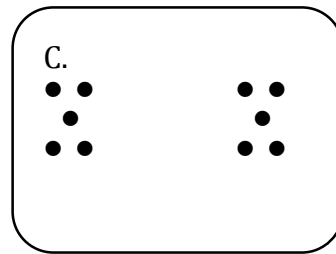
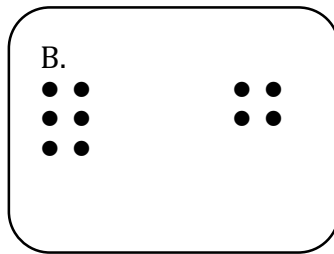
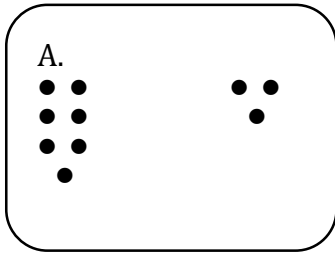


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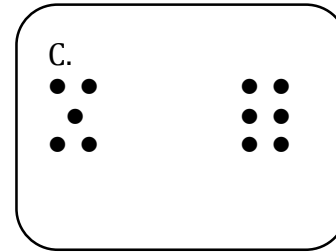
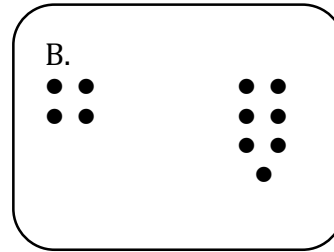
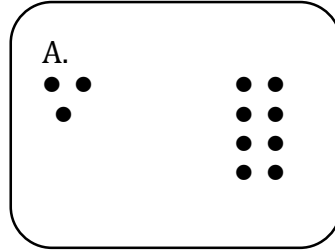


Number Talks: First Grade

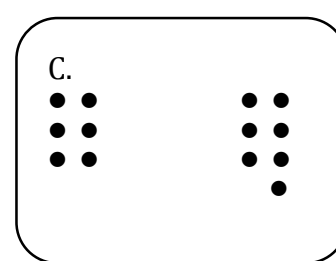
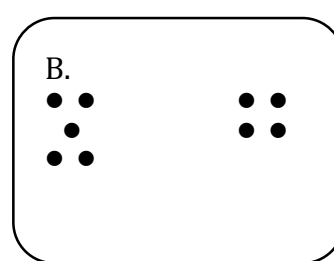
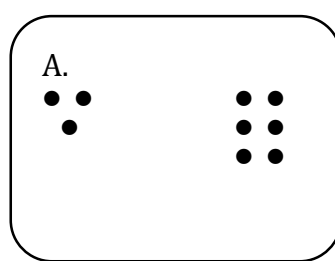
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Addition: Counting All/Counting On: Double Ten-Frames

Ten-frames are an important tool to help students reason about numbers, subitize, build fluency, work with place value, and compute with addition and subtraction.

As each problem is shown, ask students, "How many dots do you see? How do you see them?"

Counting All/Counting On: Double Ten-Frames

When the focus is on number 3 to 9, ask students, "How many dots do you see? How do you see them?" When the focus is on the number 10, the question shifts to, "How many more to make ten?"

Number Talks: First Grade

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Number Talks: First Grade

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Number Talks: First Grade

Addition; Counting All/Counting On: Number Sentences

Instructions

The following number talks are each designed to be used in a single session, in any order. These number talks consist of three to five problems. The sequence of problems within a given number talk allows students to apply strategies from previous problems to subsequent problems.

Counting All/Counting On: Number Sentences

$3 + 6$

$3 + 7$

$3 + 8$

$4 + 6$

$7 + 4$

$4 + 8$

$4 + 9$

$9 + 1$

$9 + 3$

$9 + 5$

$9 + 7$

$6 + 4$

$6 + 6$

$6 + 8$

$6 + 9$

$7 + 3$

$7 + 7$

$7 + 9$

$7 + 5$

$9 + 11$

$9 + 13$

$9 + 15$

$5 + 5$

$5 + 7$

$5 + 9$

$8 + 2$

$8 + 5$

$8 + 7$

$8 + 9$

$11 + 5$

$12 + 4$

$13 + 3$

Number Talks: First Grade

Addition: Doubles/Near-Doubles: Double Ten-Frames

Instruction

Ten-frames help students reason about numbers, subitize, build fluency, and work with place value, and compute with addition and subtraction.

The following ten-frames number talks are each designed to be used in a single session, in any order. The sequence of problems within a given number talk allows students to apply the strategies from previous problems to subsequent problems.

As each problem is shown, ask students, "How many dots do you see? How do you see them?"

Doubles/Near-Doubles: Double Ten-Frames

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Number Talks: First Grade

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Addition: Doubles/Near-Doubles: Number Sentences

$2 + 2$
 $2 + 3$
 $3 + 3$
 $3 + 4$

$4 + 4$
 $4 + 3$
 $3 + 3$
 $3 + 4$

$5 + 5$
 $5 + 6$
 $6 + 6$
 $6 + 7$

$7 + 7$
 $7 + 6$
 $7 + 8$
 $8 + 8$

$8 + 8$
 $8 + 7$
 $8 + 9$
 $9 + 9$

$9 + 9$
 $9 + 8$
 $9 + 10$
 $10 + 10$

Number Talks: First Grade

$10 + 10$
$10 + 9$
$10 + 11$
$11 + 11$

$12 + 12$
$12 + 13$
$13 + 13$
$13 + 14$

$15 + 15$
$15 + 16$
$14 + 14$
$14 + 15$

Doubles/Near-Doubles: Number Sentences
Making Tens: Double Ten-Frames

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Number Talks: First Grade

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Number Talks: First Grade

Addition: Making Tens: Number Sentences

Making Tens: Number Sentences

$9 + 1$

$9 + 3 + 1$

$9 + 5 + 1$

$5 + 5$

$5 + 5 + 4$

$5 + 3 + 5$

$8 + 2$

$8 + 3 + 2$

$2 + 5 + 8$

$3 + 7$

$7 + 5 + 3$

$3 + 6 + 7$

$4 + 6$

$4 + 6 + 4$

$6 + 5 + 4$

$1 + 8 + 9$

$9 + 3 + 1$

$1 + 6 + 9$

$5 + 5$

$5 + 6 + 5$

$4 + 5 + 5$

$2 + 8$

$2 + 5 + 8$

$8 + 6 + 2$

$5 + 5 + 8$

$3 + 4 + 6$

$4 + 5 + 6 + 5$

Number Talks: First Grade

Addition: Making Landmark or Friendly Numbers

The following number sentences are designed to encourage students to adjust one or all of the addends by adding or subtracting amounts to make a friendlier number.

$9 + 1$

$9 + 1 + 4$

$9 + 5$

$9 + 6$

$6 + 4$

$6 + 4 + 3$

$6 + 7$

$6 + 10$

$6 + 9$

$8 + 2$

$8 + 2 + 11$

$8 + 13$

$8 + 15$

$8 + 2$

$8 + 2 + 4$

$8 + 6$

$8 + 5$

$10 + 12$

$9 + 12$

$9 + 15$

$20 + 5$

$19 + 1 + 4$

$19 + 5$

$19 + 8$

$7 + 3$

$7 + 3 + 3$

$7 + 6$

$7 + 9$

$10 + 10$

$9 + 9$

$9 + 8$

$20 + 20$

$19 + 20$

$19 + 19$

Number Talks: First Grade

Subtraction: Removal or Counting Back

Many students intuitively count back to solve subtraction problems. Students are more likely to make errors using this strategy. The key is to help them realize when this is and is not an efficient strategy.

It is not necessary to develop a sequence of problems to foster the removal or counting back strategy. Instead, look for appropriate times to discuss when this strategy is and is not appropriate, and to help students begin to see the relationship between addition and subtraction, and how subtraction can be seen as a missing addend problem, using a counting on strategy.

Subtraction: Adding Up

Two ideas to consider when crafting number talks to encourage the Adding Up strategy for subtraction are 1) keep the minuend (the whole) and the subtrahend (the part to be subtracted from the whole) far apart, and 2) frame the problem in a context that implies distance.

The farther apart the subtrahend is from the minuend, the more likely it is that students will count or add up. The closer the two numbers are, the more the likelihood that students will count back. For example, if the problem is $20 - 14$, it would be more cumbersome and tedious to count back.

Creating a word problem that implies distance also gives students a mental image and action of counting up or moving forward from the smaller number to the larger number. The following story problem is an example of a context that implies distance for $20 - 7$

Martha's goal is to walk 20 laps on the school track. She has already walked 7 laps. How many more laps does Martha need to walk to reach her goal?

The scenario alone creates a mental picture and action of moving forward from 7 to 20 and lends itself to the student solving the problem in this manner.

Category 1: Adding Up

The following number talks include computation problems that foster the Adding Up strategy by incorporating two ideas:

- 1) the whole is a multiple of ten
- 2) the subtrahend is close to a multiple of ten

$10 - 6$

$40 - 29$

$40 - 24$

$40 - 19$

$20 - 15$

$20 - 14$

$20 - 10$

$20 - 11$

$20 - 14$

$20 - 4$

$20 - 19$

$20 - 9$

Number Talks: First Grade

Category 1: Adjusting One Number to Create an Easier Problem

The following number talks consist of smaller quantities- even basic facts- to help students consider what happens when numbers are adjusted in a subtraction problem.

$$20 - 14$$

$$19 - 14$$

$$15 - 5$$

$$14 - 5$$

$$20 - 15$$

$$21 - 15$$

$$19 - 15$$

$$22 - 15$$

$$20 - 10$$

$$20 - 9$$

$$20 - 11$$

$$15 - 5$$

$$15 - 6$$

$$15 - 4$$