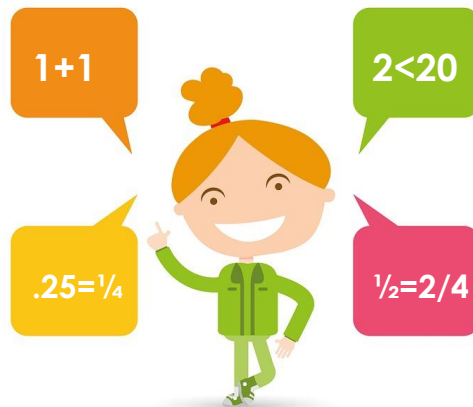


Fourth Grade Number Talks



Number Talk Videos



Topic: Launching Number Talks with Fourth Graders

Description: This 12:25 minute video demonstrates how to begin number talks in a fourth grade classroom. Notice how the teacher clearly communicates expectations for the students.

Link:

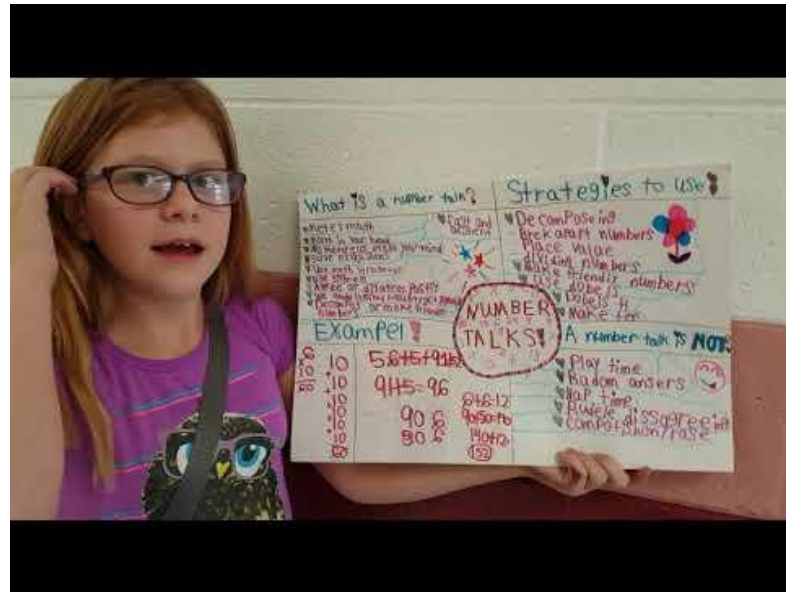
<https://youtu.be/aVD2zKE5AoY>



Curriculum Connection: Building Classroom Community

Topic: Fourth Grade Student Describes Number Talks Using an Anchor Chart

Description: Watch this 2:52 minute video to see how one student brainstormed her thoughts on number talks. She incorporated her ideas into a frayer chart that defined a number talk, listed strategies used during a number talk, and gave examples and non-examples.



Link: <https://youtu.be/XBSLYQ3wdgY>



Curriculum Connection: Building Classroom Community

Topic: Fourth Grade Number Talks- Student Justification

Description: This 2:38 minute video demonstrates a high level of student engagement during number talk. Notice how students are able to add on to each other's thinking during the discussion. Also, the hand gestures indicate norms have been established as a part of the procedure.

Link: <https://youtu.be/JGmgrg9oATE>



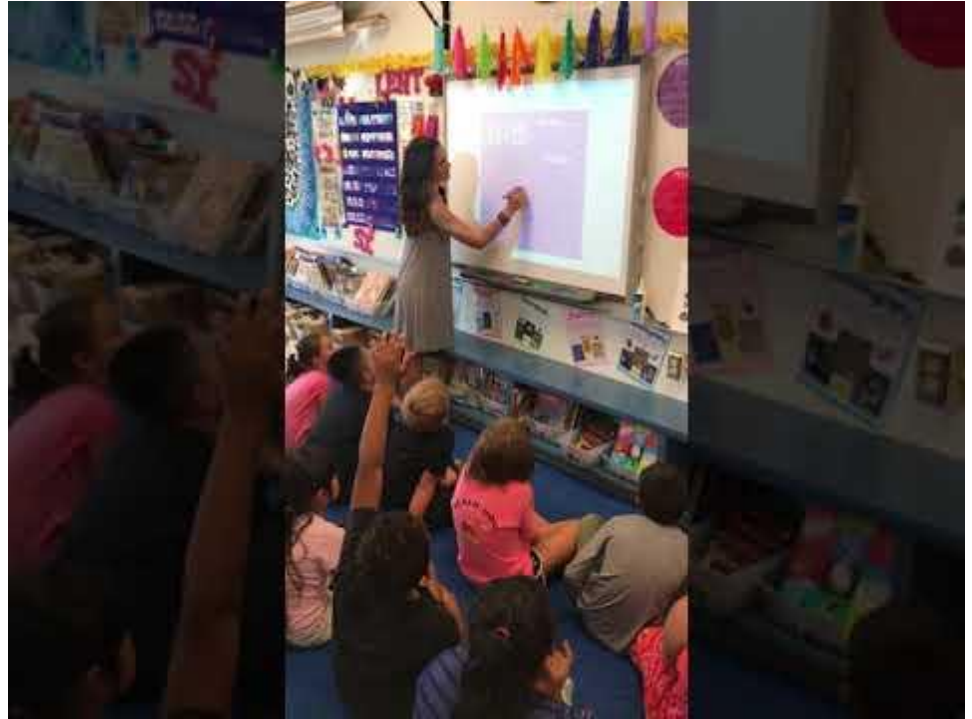
Curriculum Connection: Building Classroom Community, NC.4.NBT.4

Topic: Addition of Two 2-Digit Numbers

Description: View this 2:58 minute video to see fourth graders using mental math to add $39+35$. Note the systems in place that promote productive discussions among students.

Link:

<https://youtu.be/kkwfmSa3n9w>



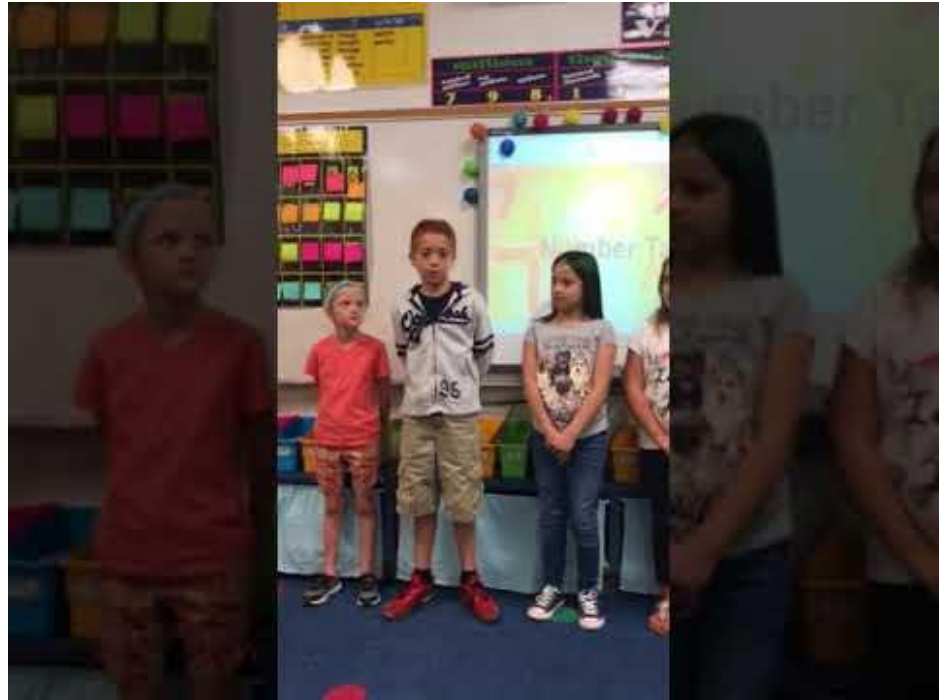
Curriculum Connection: NC.4.NBT.4

Topic: Number Talks from a Student Point of View

Description: View this 1:16 minute video to see six fourth grade students discuss why they value number talks.

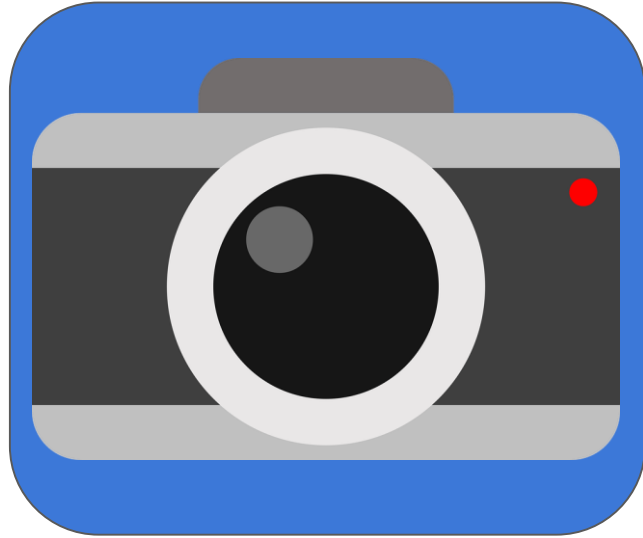
Link:

<https://youtu.be/NqjS3WC73Y8>



Curriculum Connection: Building Classroom Community

Number Talk Photographs



Topic: Building Norms for Number Talks

Description: When developing expectations for your Number Talk lesson, it is important for students to have a way to communicate their thoughts with the teacher without distracting others who are still thinking. These hand symbols are effective ways to allow students to be engaged throughout the lesson.



Hand Symbols

I'm still thinking.



I have an answer and a strategy.



I have more than one strategy.



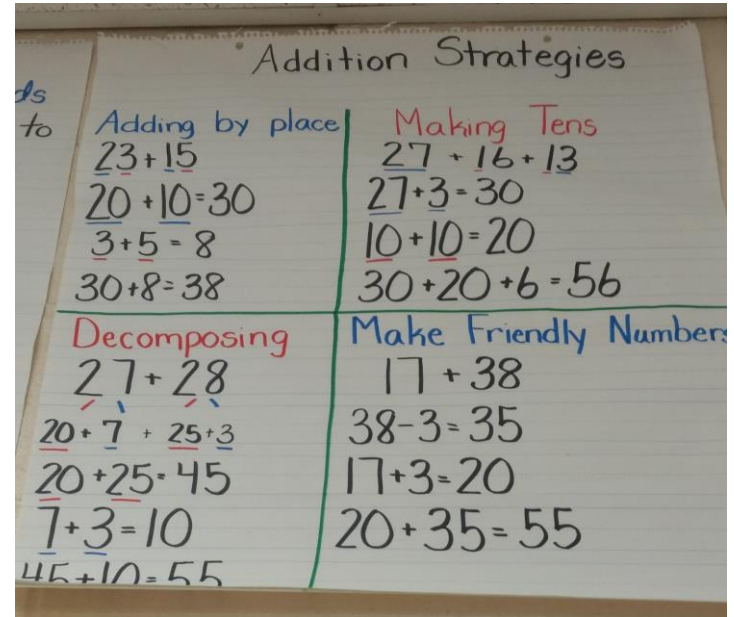
I agree.



Curriculum Connection: Building Classroom Community

Topic: Anchor Chart for Addition Strategies

Description: Developing strategy anchor charts for different operations is an effective way to preserve student thinking to be used during other portions of the math block. These anchor charts also help student access important vocabulary.



The image shows a handwritten anchor chart titled "Addition Strategies" on lined paper. The chart is divided into four quadrants by a vertical and a horizontal line. The top-left quadrant is titled "Adding by place" and shows the addition of 23 and 15, broken down into 20+10=30 and 3+5=8, resulting in 30+8=38. The top-right quadrant is titled "Making Tens" and shows 27+16+13, broken down into 27+3=30 and 10+10=20, resulting in 30+20+6=56. The bottom-left quadrant is titled "Decomposing" and shows 27+28, broken down into 20+7+25+3, resulting in 20+25=45, 7+3=10, and 45+10=55. The bottom-right quadrant is titled "Make Friendly Numbers" and shows 17+38, broken down into 38-3=35 and 17+3=20, resulting in 20+35=55. There are some faint markings on the left side of the paper, possibly "As to".

Addition Strategies	
Adding by place $23 + 15$ $20 + 10 = 30$ $3 + 5 = 8$ $30 + 8 = 38$	Making Tens $27 + 16 + 13$ $27 + 3 = 30$ $10 + 10 = 20$ $30 + 20 + 6 = 56$
Decomposing $27 + 28$ $20 + 7 + 25 + 3$ $20 + 25 = 45$ $7 + 3 = 10$ $45 + 10 = 55$	Make Friendly Numbers $17 + 38$ $38 - 3 = 35$ $17 + 3 = 20$ $20 + 35 = 55$



Curriculum Connection: NC.4.NBT.4

Topic: Anchor Chart for Multiplication Strategies

Description: Anchor charts should be developed with student input during classroom discussions. This anchor chart was created after several number talks that were centered around multiplication. Notice the high level of vocabulary in the chart. With this chart, students can access a range of strategies during math class in order to efficiently solve problems.



Curriculum Connection: NC.4.NBT.5

Multiplication Strategies
 17×5

Place Value

hundreds	tens	ones
		•
		•••
		••••
		•••••
	•	••••
	••	••••
	•••	••••
•	••	••••
••	••	••••
•••	••	••••

$17 \times 5 = 85$

Partial Product

$$\begin{array}{r} 17 \times 5 \\ 10 \times 5 \\ 7 \times 5 \end{array}$$

$10 \times 5 = 50$
 $7 \times 5 = 35$
 $50 + 35 = 85$

Box Method

	10	7	
5	$10 \times 5 = 50$	$7 \times 5 = 35$	5

$50 + 35 = 85$

Algorithm

$$\begin{array}{r} 17 \\ \times 5 \\ \hline 85 \end{array}$$

Number Talk Presentations

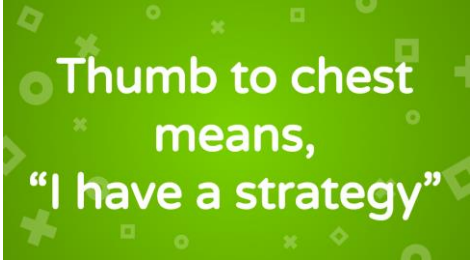


Topic: Norms for Number Talks

Description: This PowerPoint file consists of 6 slides that will be of use when launching number talks in the classroom for the first time. Each slide presents one norm for the students to follow. Some examples are listening and discussing respectfully, raising hand to be called upon. Hand signals are also introduced.

Link: <https://tools4ncteachers.com/resources/4-fourth-grade/additional-resources/cluster-1/normsfornumbertalks.pptx>

Curriculum Connection: Building Classroom Community

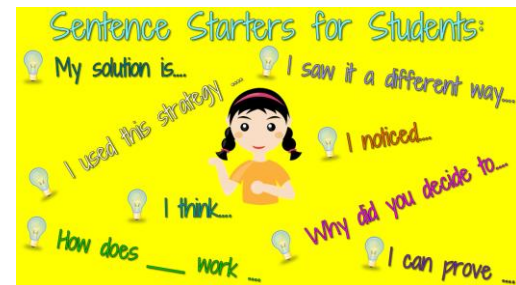
A green rectangular box with a pattern of small white mathematical symbols (plus, minus, multiplication, division, and percent signs) scattered throughout. The text is centered in white.

Thumb to chest
means,
“I have a strategy”

Topic: Launching Number Talks

Description: This PowerPoint file consists of 6 slides that will be of use when launching number talks in the classroom for the first time. These slides include both the students' role and the teacher's role in number talks. Hand signals are also included.

Link: <https://tools4ncteachers.com/resources/4-fourth-grade/additional-resources/cluster-1/launchingnumbertalks.pdf>



Curriculum Connection: Building Classroom Community

Topic: Number Talks - The First 9 Weeks and Beyond

Description: This PowerPoint file consists of 110 slides that can be used to launch number talks in the first nine weeks of school. This presentation was created and used by fourth grade teachers in our state. It consists of a variety of addition and subtraction problems.

Link: <https://tools4ncteachers.com/resources/4-fourth-grade/additional-resources/cluster-1/numbertalksfirst9weeksandbeyond.pdf>

What is a number talk?

- * Mental math
- * NO paper/pencil
- * NO talking during "think time"
- * Solve the problem in as many ways as you can.
(show how many strategies you have found on your fingers)
- * Be ready to share strategies
- * Use hand signals (*me too, disagree*)
- * Use **MATH** vocabulary
- * **LEARN** new strategies from your peers



Curriculum Connection: Building Classroom Community, NC.4.NBT.4

Topic: Number Talks – Making Friendly Numbers

Description: This PowerPoint file consists of 5 days of number talks that can be used with a fourth grade class who is working on making two 2-digit numbers friendly in order to add mentally.

Link: <https://tools4ncteachers.com/resources/4-fourth-grade/additional-resources/cluster-1/numbertalksmakingfriendlynumbers.pdf>



Curriculum Connection: NC.4.NBT.4

**Number Talks –
Making Friendly Numbers**



Topic: Fourth Grade Number Talks – Doubles or Nearly Doubles

Description: This PowerPoint file consists of 5 days of number talks that can be used with a fourth grade class who is working on using doubling to add two 2-digit numbers mentally.

Link: <https://tools4ncteachers.com/resources/4-fourth-grade/additional-resources/cluster-1/numbertalksdoublesornearlyd>

**Number
Talks**
Doubles or
Nearly Doubles



Curriculum Connection: NC.4.NBT.4

Number Talk Articles



Topic: Tips for Getting Started with Number Talks

Description: This article provides tips and strategies for getting started with number talks. As you read, you will learn ways to encourage students to participate, handle mistakes, and attend to the learning goal of the lesson.

Link: <https://tools4ncteachers.com/resources/4-fourth-grade/additional-resources/cluster-1/tipsforgettingstartedwithnumbertalks.pdf>

Tips for Getting Started with Number Talks
By Leigh Bellford



A Number Talk is an essential math routine for developing fluent, confident mathematicians. This student-centered talk allows students to build an understanding of numbers and their relationships to flexibly solve problems. During Number Talks, students are asked to solve problems using mental math and precisely communicate their thinking while reasoning about the strategies of their peers. Ready to launch Number Talks in your classroom? These tips will help you get started.

1. **Conduct Number Talks regularly.** Number Talks should be conducted 3 to 5 times a week and build upon new strategies from day-to-day. Number Talks can be conducted during whole group or small group time so that flexibly about when it best fits with your daily math routines.
2. **Be comfortable with wait time.** We as teachers are familiar with the idea of wait time, those 10 long seconds we pause after posing questions to allow students to gather their thoughts and formulate a response. There are actually two chances for wait time during mathematical discourse: after you pose questions and after a student responds. Be comfortable with wait time in both of these instances as students develop their ideas before sharing.
3. **Getting over the procedural hump.** Even with ample wait time, when you first begin Number Talks students may only have one single way of solving a problem. Students whose early mathematical experiences focused on learning procedures typically don't have a good understanding of underlying mathematical relationships and may feel that being good in math means using the "right" procedure. When this is true, it is not the best time to press for too much exploration as it may bring down your Number Talk. Pushing too hard for explanations too early in the implementation process may often be discouraging for you and
4. **Generally listen to student thinking.** Number Talks are an opportunity for us to get a true glimpse into our students' thinking about mathematics. It's easy to assume that we understand a student's strategy and to describe it using our own words rather than theirs. When we are unsure of their explanations, it is a good idea to revoice what they said or ask a probing question so that students can clarify or extend their own strategy/thinking. Once we understand their ideas, our role moves to recording their thinking as clearly and accurately as possible.

English Language Learners and Learning Disabled students can also greatly benefit from Number Talks. When working with these students, the primary goal is to encourage students to express their mathematical ideas in their own words, using appropriate vocabulary is a secondary focus.

Here are some ideas that help facilitate clear student explanation:

- Model appropriate mathematical language when talking with your students about mathematics.
- Encourage students to speak loudly enough for everyone to hear and use appropriate mathematical language.
- Praise students with sentence starters like those shared in Figure 1.1.
- Encourage students to share their ideas precisely by discouraging the use of phrases like "I think it had two to 1 added 10 to 8", insist that students clarify their thinking.

Tools 4 Teachers

student's confidence in sharing their mathematical thinking.

It's also important to remember the impact of building a safe classroom culture. In order for students to feel comfortable in sharing their thinking and taking intellectual risks during a Number Talk, you must work to build a community of mutual trust.

Figure 1.1

Number Talk Sentence Starters

I solved the problem by _____
I noticed that _____
The strategy I used was _____
I know that _____ because _____
To add on _____
I agree/disagree with _____ because _____
I'm still not sure about _____
A better strategy might be _____
and _____ are similar/different because _____
This reminds me of _____ because _____

Tools 4 Teachers




Curriculum Connection: Building Classroom Community

Topic: Number Talk Frequently Asked Questions

Description: Teachers often have questions about number talks. This article answers 12 frequently asked questions from the perspective of fourth grade teachers who have implemented number talks in their classrooms.

Link: <https://tools4ncteachers.com/resources/4-fourth-grade/additional-resources/cluster-1/numbertalksfaq.pdf>



Fourth Grade Number Talks FAQ

The following article is written by compiled responses of fourth grade teachers in North Carolina's Randolph County School System. It is designed to help teachers who are implementing number talks find answers to questions that they may have at the beginning of the process.

1. What do you do when your students are stuck on one number talk strategy? You have a few options. One option is to make up an imaginary student from previous years in order to demonstrate a new strategy. Say something like, "A student in my class last year used this strategy..." Follow up by modeling the strategy and asking students to reflect on the pros and cons. Another option would be to ask students to get creative with their strategy. Ask them something like "Can you think of a different strategy that we have used in class before that ties to this situation?"



Curriculum Connection: Building Classroom Community

Topic: Making the Most Out of Number Talks in Your Classroom

Description: This article provides a brief snapshot of why number talks are important and how teachers can begin using number talks in their classroom. This article could possibly be used with parents as well if they wanted information about number talks.

Link: <https://tools4ncteachers.com/resources/4-fourth-grade/additional-resources/cluster-1/makingthemostoutofnumbertalksinyourclassroom.pdf>



Curriculum Connection: Building Classroom Community

What is a Number Talk?

So, perhaps you are wondering to yourself, what exactly is a number talk? As its name implies, a number talk is a class meeting where students come together to talk about numbers.

1. The classroom teacher designs an image or expression that is shown to the class. The teacher selects a strategy of focus.



A teacher who begins with this dot formation may want their students to think about ways to subitize numbers. A picture like this can help students use strategies such as "doubles and one more" or "doubles and one less". Using these dot image formations helps students become automatic in recognizing number arrangements.

Additional Resources



Topic: Suggested Mental Math Strategies


Description: This resource helps teachers plan and pace their number talks throughout the school year. It lists common strategies for addition, subtraction, multiplication, and division in order of increasing sophistication. Some of the strategies are linked to a video that illustrates the strategy.

Link: <https://tools4ncteachers.com/resources/0-kindergarten/additional-resources/cluster-1/number-talks-suggested-mental-math-strategies-by-grade-level.pdf>



Curriculum Connection: NC.4.NBT.4, NC.4.NBT.5, NC.4.NBT.6

Suggested Mental Math Strategies
Strategies are listed in order of increasing sophistication.
Strategies appear in blue when they might be introduced for the first time.

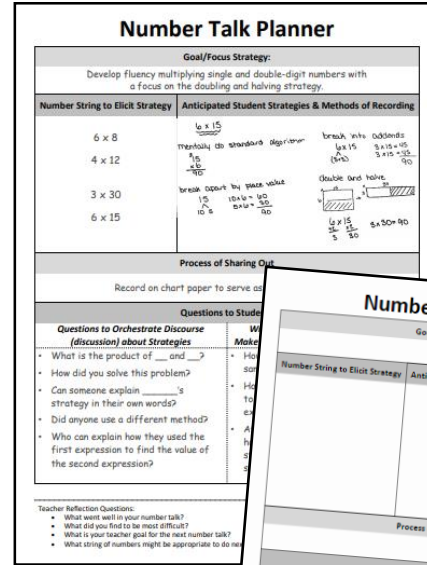
 Click on the strategy to view a video snapshot.

Early Number Concepts	Addition	Subtraction	Multiplication	Division
<ul style="list-style-type: none"> Fluency within five <ul style="list-style-type: none"> Five frames Dot cards Rekenrek Fluency within ten <ul style="list-style-type: none"> Ten frames Dot cards Rekenrek 	<ul style="list-style-type: none"> Counting all Counting on Making ten 	<ul style="list-style-type: none"> Counting back 		
<ul style="list-style-type: none"> Fluency within ten <ul style="list-style-type: none"> Ten frames Dot cards Rekenrek 	<ul style="list-style-type: none"> Counting all Counting on Making ten Doubles and near doubles Making friendly numbers Compensation Break each number up by place value 	<ul style="list-style-type: none"> Counting back Adding up Removal Adjusting one number 		
	<ul style="list-style-type: none"> Counting on Making ten Doubles and near doubles Making friendly numbers Compensation Break each number up by place value Adding up in chunks 	<ul style="list-style-type: none"> Adding up Removal Adjusting one number Keep a constant difference 		
	<ul style="list-style-type: none"> Making ten Doubles and near doubles Making friendly numbers Compensation Break each number up by place value Adding up in chunks 	<ul style="list-style-type: none"> Adding up Removal Adjusting one number Keep a constant difference 	<ul style="list-style-type: none"> Repeated addition Doubling Benchmark numbers Partial products Doubling and halving Break factors into smaller factors 	<ul style="list-style-type: none"> Repeated subtraction Using quotients Partial quotients Multiplying up
	<ul style="list-style-type: none"> Making ten Doubles and near doubles Making friendly numbers Compensation Break each number up by place value Adding up in chunks 	<ul style="list-style-type: none"> Adding up Removal Adjusting one number Keep a constant difference 	<ul style="list-style-type: none"> Repeated addition Doubling Benchmark numbers Partial products Doubling and halving Break factors into smaller factors 	<ul style="list-style-type: none"> Repeated subtraction Partial quotients Multiplying up Proportional reasoning
	<ul style="list-style-type: none"> Making ten Doubles and near doubles Making friendly numbers Compensation Break each number up by place value Adding up in chunks 	<ul style="list-style-type: none"> Adding up Removal Adjusting one number Keep a constant difference 	<ul style="list-style-type: none"> Repeated addition Doubling Benchmark numbers Partial products Doubling and halving Break factors into smaller factors 	<ul style="list-style-type: none"> Repeated subtraction Partial quotients Multiplying up Proportional reasoning

Topic: Number Talk Planning Templates

Description: This planning template helps teachers plan their daily number talks. Using this template teachers can carefully plan and consider the goal/focus strategy for the number talk, possible problems, anticipated strategies, and questions to promote discussion.

Link: <https://tools4ncteachers.com/resources/4-fourth-grade/additional-resources/cluster-1/numbertalkplanningtemplateblank.docx>



Number Talk Planner

Goal/Focus Strategy:
Develop fluency multiplying single and double-digit numbers with a focus on the doubling and halving strategy.

Number String to Elicit Strategy	Anticipated Student Strategies & Methods of Recording
6 x 8	to x 15 multiplying by standard algorithm
4 x 12	break into addends 6 x 15 3 x 15 = 45 2 x 15 = 30 45 + 30 = 75
3 x 30	break down by place value 10 10 10 10 + 10 + 10 = 30 3 x 10 = 30
6 x 15	double and halve 3 x 15 = 45 45 x 2 = 90

Process of Sharing Out
Record on chart paper to serve as

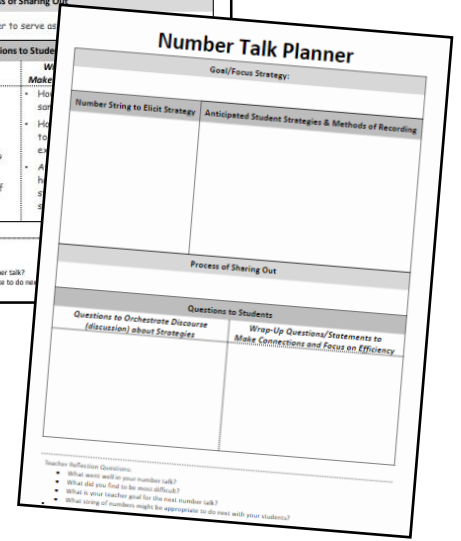
Questions to Students

Questions to Orchestrate Discourse (discussion) about Strategies

- What is the product of ___ and ___?
- How did you solve this problem?
- Can someone explain ___'s strategy in their own words?
- Did anyone use a different method?
- Who can explain how they used the first expression to find the value of the second expression?

Teacher Reflection Questions:

- What went well in your number talk?
- What did you find to be most difficult?
- What is your teacher goal for the next number talk?
- What string of numbers might be appropriate to do next?



Number Talk Planner

Goal/Focus Strategy:

Number String to Elicit Strategy	Anticipated Student Strategies & Methods of Recording

Process of Sharing Out

Questions to Students

Questions to Orchestrate Discourse (discussion) about Strategies

Wrap-Up Questions/Statements to Make Connections and Focus on Efficiency

Teacher Reflection Questions:

- What went well in your number talk?
- What did you find to be most difficult?
- What is your teacher goal for the next number talk?
- What string of numbers might be appropriate to do next with your students?

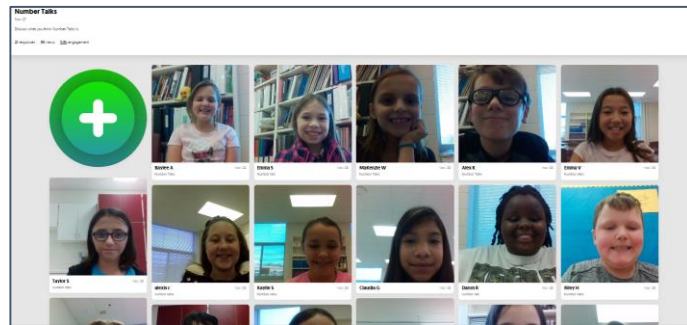


Curriculum Connection: NC.4.NBT.4, NC.4.NBT.5, NC.4.NBT.6

Topic: FlipGrid

Description: This website is a great way for students to record their thinking for others to view. It can be used as an informal assessment to check for understanding of a specific concept or to learn about the variety of strategies students are using for a particular problem during a number talk. The website is free to use.

Link: <https://flipgrid.com/>

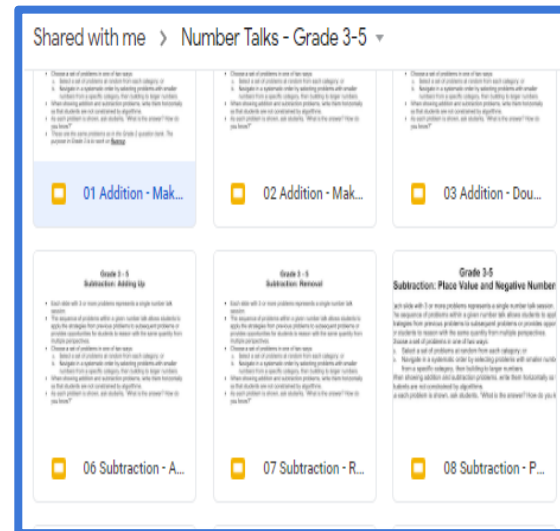


Curriculum Connection: Building Classroom Community

Topic: Google Folder: Number Talks Grades 3-5 - Number Strings

Description: Visit this link to find 18 files for use with number talks. There are presentations for addition, subtraction, and multiplication. In addition, you will find articles on how to use number talks in your classroom.

Link: <https://drive.google.com/open?id=0Bze4eU0rInwwVG5EZVNMCDJFNmc>



Curriculum Connection: NC.4.NBT.4, NC.4.NBT.5

Topic: Online Resources

Description	Link
<p>Elementary Number Talks (Downloadable resources for addition, subtraction, multiplication, and division)</p>	<p>https://elementarynumbertalks.wordpress.com/3rd-4th-and-5th-grade-number-talks/</p>
<p>This Math Was Made for Talking: Targeting Math Discussions in the K-6 Classroom NCTM Article</p>	<p>https://www.nctm.org/blog/thismathwasmadefortalking/</p>
<p>Multiplication Number Talk: Fourth & Fifth Grade Teaching Channel Video (18 minutes)</p>	<p>https://www.teachingchannel.org/videos/4th-5th-grade-number-talks</p>
<p>Multiplication Number String: Fourth Grade Teaching Channel Video (21:28 minutes)</p>	<p>https://www.teachingchannel.org/videos/multiplication-number-strings-fourth</p>
<p>Elementary Math Includes a variety of links to articles, videos, photos about Number Talks</p>	<p>https://elemath.hallco.org/web/number-talks/</p>



Curriculum Connection: NC.4.NBT.4, NC.4.NBT.5, Building Classroom Community