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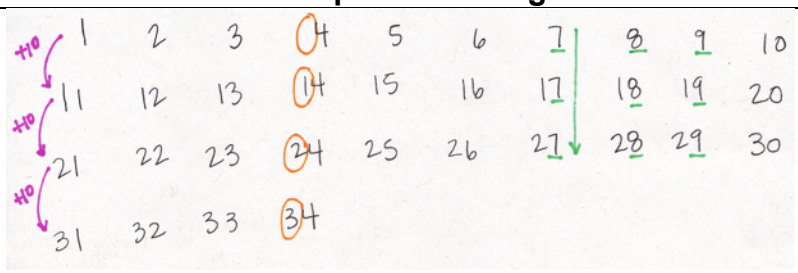
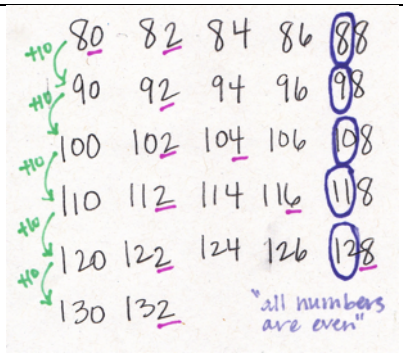
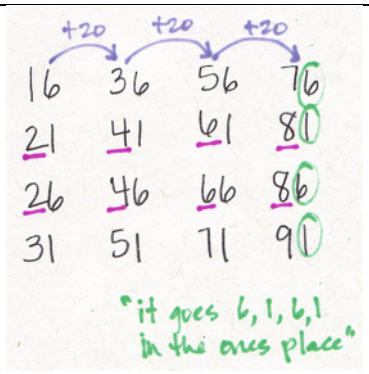
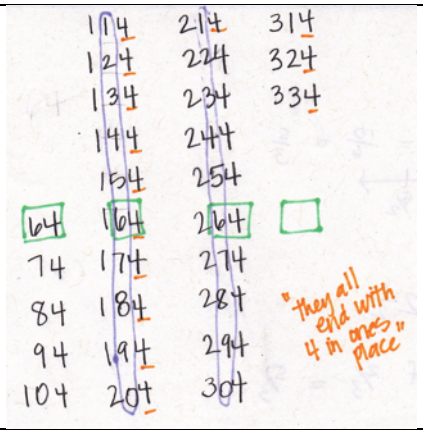
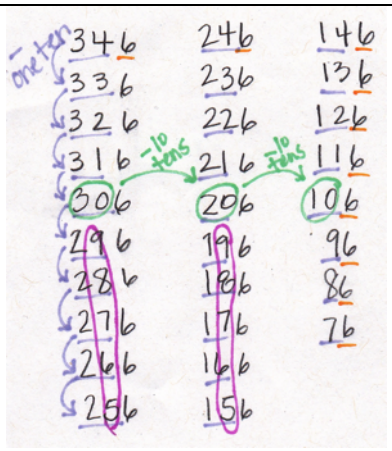
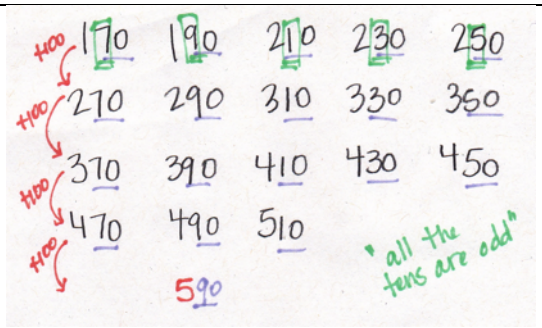
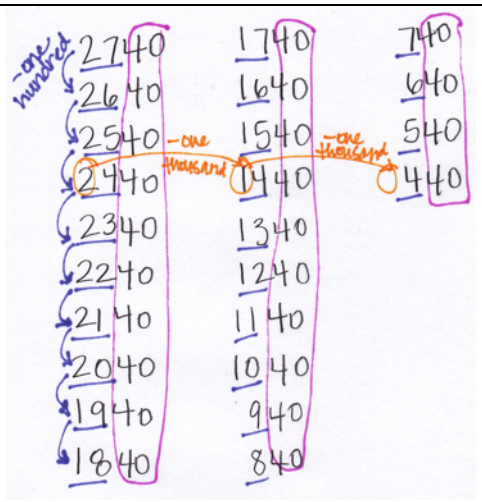
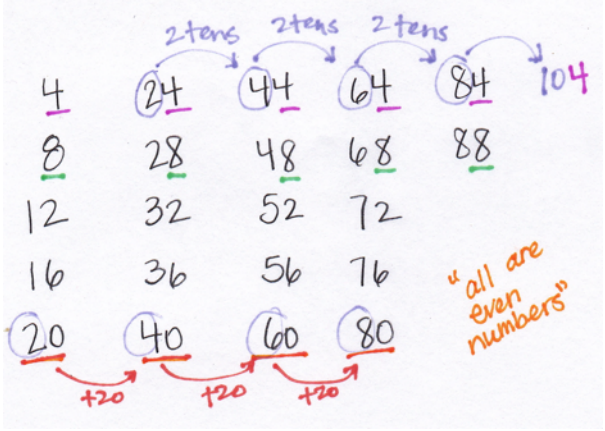
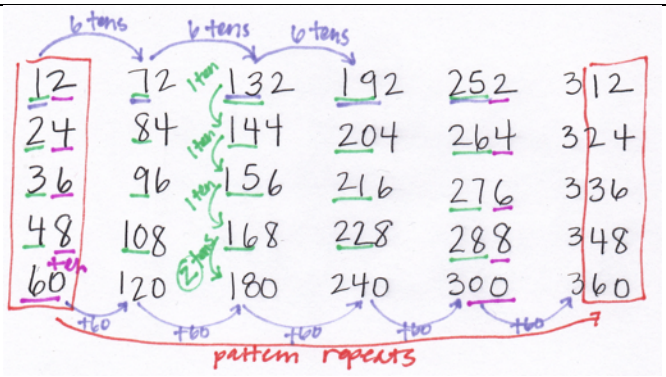
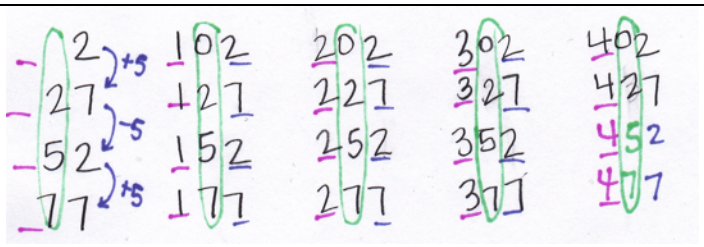
Choral Counting Tasks Ideas

Whole Number		
Task	**Big Mathematical Ideas**	**Sample Recording**
Count forward or backward by 1 … from 0 … from 20 … from 80 and beyond	• Fluency with the counting sequence • Notice repetition of base-ten number system	
Count forward or backward by 2 … from 0 … from 20 … from 80 and beyond	• Fluency with the counting sequence • Notice repetition of base-ten number system	
Count forward by 5 … from 0 … from 20 … from 80 and beyond	• Develop skip-counting skills • Ideas about composition of 10 and base-ten number system	
Count forward by 10 … from 0 … from 70 or 170 … from 64 or 164	• Developing efficient strategies for +/-: counting on by tens • Begin to generalize the structure of the base-ten number system beyond 100	

Count backward by 10 …from 250 …from 346	• Developing efficient strategies for +/-: counting on by tens • Begin to generalize the structure of the base-ten number system beyond 100	
Count forward by 20 … from 0 … from 60 or 160 … from 64 or 164 … from 70 or 170	• Developing efficient strategies for +/-: incremental strategies • Begin to generalize the structure of the base-ten number system beyond 100	
Count forward or backward by 100 … from 700 or 740 … from 2700 or 4740	• Exposure to large numbers (important, but often overlooked) • Generalize the structure of the base-ten number system beyond 100	

Count forward by 4 or other single digit number	• Develop skip-counting skills • Connections to multiplication	
Count forward by 12	• Develop skip-counting skills • Connections to multiplication: repeated addition, breaking apart numbers by place value (10 and 2)	
Count forward by 25 … from 2 … from 37	• Develop efficient strategies for +/- • Composition of 100	

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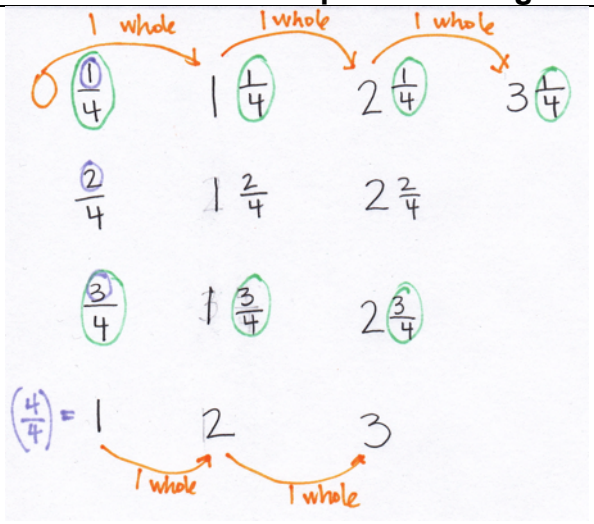
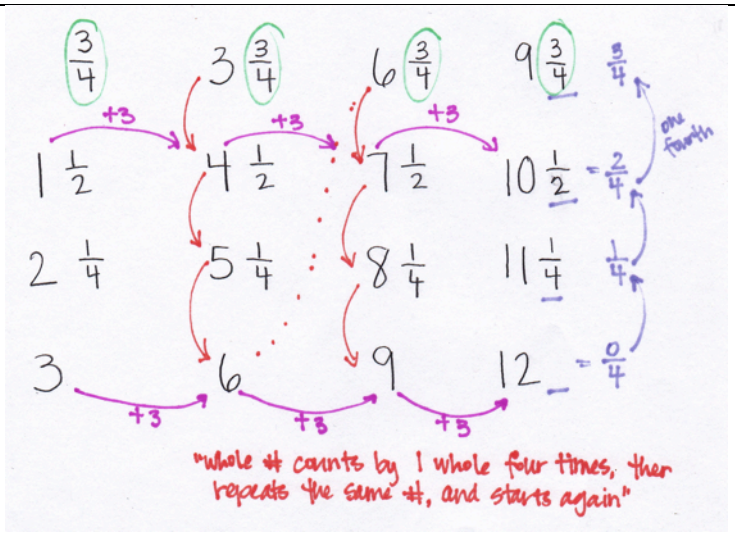
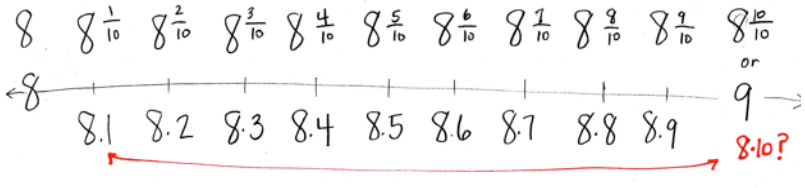
Fractions and Decimals		
Task	**Big Mathematical Ideas**	**Sample Recording**
Count forward by ¼	• Understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b* • Develop understanding of fractions greater than one and equivalent and mixed fractions (eg. we could count 5/4 or 1 and 1/4)	
Count forward by 3/4	• Develop understanding of the composition of common fractions (eg. from ¾ we can count on ¼ and 2 more fourths)	
Count forward by 1/10 and 0.1	• Use students' understanding of fractions to better understand decimal notation	

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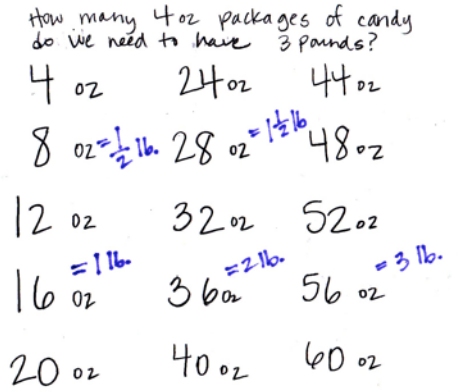
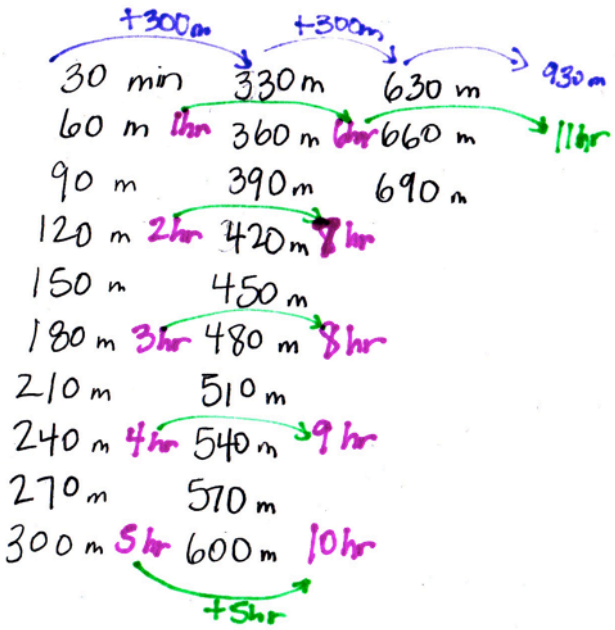
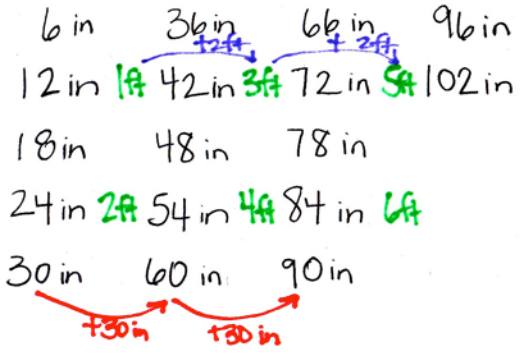
Units of Measurement		
Task	**Big Mathematical Ideas**	**Sample Recording**
Count by ounces and then find pound conversions	• Develop familiarity with units of measurement and conversions	
Count by minutes, converting to hours and minutes	• Develop familiarity with units of measurement and conversions	
Count by inches, converting to feet or count by feet, converting to yards	• Develop familiarity with units of measurement and conversions	

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Choral Counting Planning Template

Count by _____, from _____ , up/down.

Anticipated Counting Strategies	**Record of Count & Patterns**
Planned Pauses	
Patterns you expect to be noticed (Record Above) & Responses/Extension Questions you might ask.	

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Choral Counting Planning Protocol

This instructional activity asks teachers to engage a group of students in counting together, to discuss patterns in the number system and to connect written and verbal language. The task requires that teachers choose a counting sequence that would be productive and accessible for their students. It also requires that teachers manage choral response, participation, and responding to student comments, questions. The counting task can be a springboard for the upcoming mathematical work in the lesson.

Step 1: Choose a counting sequence Consider where to start and what number to count by, keeping in mind where the counting sequence should end.	
Step 2: Introduce counting task to students • Talk to students about what the task is and clarify by starting the count together. • Explain the "choral" aspect of the task (counting together, some think time in between numbers, etc.) • Consider what the pace of your counting will be and how you will keep students together. • Might want to allow individual think time for students to write out their ideas to the first few problems.	
Step 3: Start the counting sequence together • If the students are not with you after the first few counts stop and start again. Keep the energy up. • You should be writing the count on the board as the students call out the numbers. It is important to think about how you write the sequence: where will you end and start a new line, how you line them up, and so on.	
Step 4: After first 4 or 5 counts – check in. • Ask – *Who can tell us what number will come next? How do you know? Does someone have another way to know the next number?*	

• The goal here is to make sure that students each have a way to figure out what number comes next and can participate as well as to highlight the mathematics going on. <u>If students are having trouble with the count…</u> • You can change the number you are counting by • You can give the students some time to count on their own on a piece of paper and then come back together to count as a group	
Step 5: Continue to count together	
Step 6: Draw count to a close You want to have a place to stop in your mind. Make sure enough of the count is recorded that the patterns you anticipate are readily noticeable.	

Step 6: Discussing the patterns
• Now you want to know what students notice about the counting sequence. This is where a lot of mathematical ideas will emerge for you to ask questions about and build upon.
• Ask -- *What patterns do you notice? What do you notice about these numbers?*
• Or you may want to focus in on a particular mathematical idea you want to push on – like
  o *Who can circle all the 20's?*
  o *Who can show us which numbers are whole numbers?"*
  o *Based on the patterns we've noticed, if we keep going, will we land on….?"*
• Choose one thing you want to follow up on – either a pattern shared or a question about particular content.	

Step 7: Closing the task • Close the choral count by repeating some of the patterns shared or highlighting one big mathematical idea that was shared. • You may want to leave the recorded count up for students to refer back to.	

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Choral Counting
Quick Plan Sheet

Choral Count:_____

Big Idea:_____

Choral Count Outline

Math Talk Plan:

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Prompts for Reflection and Discussion on Choral Counting Enactments

Here are some prompts you might give teachers to think about their enactments. On the next page you will find a more formal written assignment that teachers could do independently.

- What goal(s) did you have for this specific *Choral Counting* task? How did these goals play out in your enactment?
- How did your understanding of your students' prior learning, experiences, and development guided your choice or adaptation of this *Choral Counting* task?
- Describe any instructional strategies you used to support students with specific learning needs.
- In what ways did you orient students to each other?
- In what ways did you orient students to the content?
- Describe mathematical errors or misunderstandings you encountered during the task and how you addressed them (or plans you have to address this in the future).
- Explain how you helped students make connections between facts, concepts, and problem solving strategies during the activity.
- How did you support students to identify resources to support their progress toward the specific goal(s) you had for this *Choral Counting*?
- What ideas do you have for future enactments of *Choral Counting* with this group of students?

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Assignment: Written Reflection on Counting Collections Enactment

Respond to the following prompts to explain how your plans supported your students' learning of mathematics related to your goal.

1. Explain how the instruction (tasks, activities, discussions, and/or teaching strategies) depicted in the clip motivated and intellectually engaged students in developing understandings of mathematical concepts. Cite specific examples from the clip of what students said/did to support your explanation.

2. Using examples from the clip, describe how your instruction (tasks, activities, discussions, and/or teaching strategies) linked students' prior learning experiences with new learning. Prior learning and experience includes students' academic content knowledge, language development, social/emotional development, family/cultural assets, interests, and lived experiences.

3. Cite evidence from the clip of what you and your students said/did to support the following explanations:
    a. Explain how you elicited student thinking through questions or materials and facilitated responses that supported students' understanding and use of mathematical concepts.
    b. Explain how you and the students used representations to support their understanding and use of mathematical concepts.

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Choral Counting Planning Template

Count by _____, from _____ , up/down.

Anticipated Counting Strategies	**Record of Count & Patterns**
Planned Pauses	
Patterns you expect to be noticed (Record Above) & Responses/Extension Questions you might ask.	

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Counting Collections
Tips for Getting Started

Creating Counting Collections

- Gather a variety of items to count. Examples: bottle caps, pasta, birthday candles, stones, glass marbles, hair ties, playing cards, game pieces, buttons, beads, craft sticks, foam stickers, pom poms, game pieces, paper clips, crayons, tiles, cubes, pattern blocks, etc.

- For experienced counters, gather collections that come in packages that can't be opened. (boxes of 100 paperclips, 12 pencils, 8 crayons, mini boxes of candy, reams of paper, etc.)
- Put each collection in a ziplock bag or plastic container.
- The size of your collections will vary with your students. For example: Kindergarten collections might range from 25 (in September) to 150 or more later in the year. First graders may begin with counts of 50-100 and later to count 200 as they transition to counting by tens and ones. Second and third graders may begin counting 100-150 objects by ones. They will transition to counting large numbers (300 +) of objects by tens and ones and counting sets of various sizes (eg. boxes of 8 crayons).

Preparing Other Materials

- Gather a collection of cups, bowls, egg cartons, etc. for students to use to organize their counts.
- Have hundreds charts available for younger students.
- Print recording sheets for students.
- Print anecdotal record sheets for teachers.

The Counting Collections Instructional Activity is adapted by the University of Washington based on the work of Megan Franke, UCLA and "Counting Collections" by Schwerdtfeger & Chan (2007).

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Getting Started

- Consider how to group students. Students can work individually, in partners, or in small groups. You know your students best!
- Give students a set of items to count. Try not to provide teacher direction on how to count the items. Students will get different ideas on how to group and count from listening to their peers.
- Ask students to show you how they counted. Showing might mean to leave out the items before they put them away so that you or others can see groupings, how they lined up the items, etc. Showing might mean writing down how items were counting on a piece of paper. (Students will have many different ways of doing this.) Eventually students may use number sentences to show how items were grouped and combined when counting. In order for students to use formal mathematical notation to record how they counted, you will have to introduce some conventions.

Attending to students' thinking during counting collections

- Pay attention to how students are or are not keeping track of what has been counted and what hasn't been counted.
- Try to remain open to various types of groupings. It is tempting to give preference to students who count by base ten units because groups of ten, hundreds, thousands and so forth are often the most powerful grouping. However, it is also important to understand that numbers can be decomposed into other groups. For example, to solve 277 ÷ 25 (either in a story or number sentence); it is more useful to know how 275 can be decomposed into groups of 25 than it is to know that 277 is the same as 27 tens and 7 ones.
- Are students flexible in their grouping? When other students group items differently do they recognize that the ending quantity will stay the same? For example, do they recognize that 235 is the same as 23 groups of 10 and 5 ones and also that 235 is 2 hundreds, 3 tens and 5 ones and also….
- Look to see if students are able to combine like groups to make composite groups. For example, do students combine groups of tens to make a group of 100 and then work with that group of 100?

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A Sampling of Questions You Might Ask During Counting Collections

- How do you know which items you have counted and which ones you have not counted?
- What were you doing yesterday to keep track?
- Why did you switch strategies today?
- Why did you decide to put those into (cups of 15)?
- How many cups did it take to get up to (150)?
- What are you going to do with all those loose ones?
- It looks like the two of you are using different strategies. Do you have a plan for how you will add your totals together?
- Why did that turn out to be a tricky collection to count?
- What will you do differently next time?

Name_____

Date_____

Counting Collections

Bag _____

How many items were there?_____

Show how you counted.

Anecdotal Record Sheet

Student	Counted by 1s	Counted by 10s	Counted by __	Missteps @ __	Notes on Recording Strategies	Other Notes

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Launch and Wrap Up Conversations in Counting Collections

Highlighting Mathematical Practice 4: Model with Mathematics

***Social Goals* Conversations**	
Connections to Modeling	***Example***
Formulate a model: Supporting students to count together	"Janelle and Hamza, can you share how you used rock, paper, scissors to decide how to count your collection last time? You could try that today to decide."
Validate the model: Encourage students to make connections between each other's ideas.	"Some pairs are making their own recordings of the count and then looking at each other's work. Let's look at these two recordings of the same collection. What's the same? What's different?"

Counting Conversations	
Connections to Modeling	***Example***
Formulate a model: Prompt students to decide what to count by and how to organize the count.	"Last time we did collections, I saw some people counting by fives and they thought it was pretty fast to count that way. Jared, can you show us how you counted by fives?" "Today, some people used cups to organize their counting. You could try that next time."
Compute: Support students to complete their count. Students may get stuck at a particular number or lose track of items that have been counted.	"Samira and Nyla got stuck when they got to a big number. Did anyone else get stuck today? Here are some tools we have in the room that can help us when we get stuck... "
Interpret: Explore the result of the count. Decide whether the number is reasonable and how it fits in with other numbers.	"If you're not sure if your count is right, you can double check. Tim came up with another way. He thought about his collection from yesterday and said, "I had 32 yesterday and this looks like less so it can't be 40!"
Validate the model: Press students to explain connections between their model, in this case their count, and the physical items.	"Look at this collection. Can we be sure there are ___? How?" "How can we be sure we counted all of the items?" Share students' strategies for keeping track.

Recording the Count Conversations	
Connections to Modeling	***Example***
Formulate a representation: Prompt students to decide how they can record their count on paper.	"People have been recording their counts in lots of interesting ways. Here are a few. You could try one of these ways today."
Compute: Students may need support in writing the numbers.	"Some of these collections are big! Where can we look to find out how to write 122?"
Interpret: Ask students to explain the meaning of their representation.	"Let's look at this recording and see if we can figure out how many items there were."
Validate the model: Press students to explain connections between their model, in this case their representation of the count, and the physical items.	"Some people are counting by fives, but then when they record they draw each item. Is there a way we could show how they counted by fives?"

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Conferring Conversations in Counting Collections

Highlighting Mathematical Practice 4: Model with Mathematics

***Social Goals* Conferring Conversations**	
Connections to Modeling	***Example***
Formulate a model: Supporting students to count together	"How will you count this collection? Is there a way you can do it together?"
Validate the model: Encourage pairs of students to make connections between their two representations.	"Are your drawings the same? How are they different?"

Counting Conferring Conversations	
Connections to Modeling	***Example***
Formulate a model: Prompt students to decide what to count by and how to organize the count.	"It looks like you're just getting started. Do you know what you'd like to count by today?" "Hmm… Counting by ones is taking you a while, isn't it? Is there a faster way you could count how many there are?"
Compute: Support students to complete their count. Students may get stuck at a particular number or lose track of which items have been counted.	"When I was watching you count, I noticed you missed a few over here. Do you think there's a way we could keep track to be sure we count each one?"
Interpret: With younger students, check for cardinality after they count.	"So, how many are there?" Students may either state the final number (showing understanding of cardinality) or be somewhat puzzled, or just start counting the set again.
Validate the model: Press students to explain connections between their model, in this case their count, and the physical items. This move works better when the count is organized in groups, rather than counting by ones.	"Are you sure that is how many there are? How do you know?" "I heard you counting by fives. Can you tell me about how you counted? How does that help you know that there are __?"

Recording the Count* Conferring *Conversations	
Connections to Modeling	***Example***
Formulate a representation: Prompt students to decide how they can record how many items there were on paper.	"Ok, so you counted how many there are. Now, can you show on paper how many there are? Try to make it clear so someone can see exactly how you counted."
Compute: Students may need support in writing the numbers.	"Wow, one hundred twenty. Do you know how to write that number? Let's go look at our hundreds chart and see if we can find it."
Interpret: Ask students to explain the meaning of their representation.	"Tell me about what you've written here. How many does it show?"
Validate the model: Press students to explain connections between their model, in this case their representation of the count, and the physical items.	"Are you sure that is how many there are? Is there are way you could make it more clear?" "It looks like you drew a circle for each one. Does that match how you counted?"