



Counting Collections

At Lakeridge, we are counting!

Counting Collections is becoming a regular practice in many of our classrooms, as a result of our work with the University of Washington.

Why is counting important?

Counting provides the foundation for understanding numbers and for computation skills (addition, subtraction, multiplication, and division).

Counting teaches children

the names of numbers

the sequence of numbers

one-to-one correspondence

relative size

efficient and accurate counting strategies

It's easier to keep track of groups of ten, than to count 170 single objects!

skip counting (5-10-15-20)

how to count on from a number (129, 130, 131)

how to count groups of objects

how to represent or record what they've counted



What should children count?

Everything!! Buttons, rocks, candy, seeds, hair clips, toys, books, pencils, crayons, blocks, flowers on the wallpaper, etc. Older kids can count unopened boxes of items.

Paperclips come in boxes of 100. If I have 15 boxes plus 26 loose paperclips, how many do I have?

How can you help at home?

- Count out objects out loud together
- Provide objects to count: cereal, macaroni, sunflower seeds, pennies
- Look for opportunities to count. Examples: Count while picking up Legos or toys. Count the number of tiles on the floor while waiting for an appointment. Count items in the grocery cart. Count items in the kitchen. Count the books on the bookshelf or toys in the toy box.

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Getting Started

Create 13 or more 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).

Prepare 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.

Summary created by Lakeridge Elementary School together with the University of Washington 2012

Adapted from: Kern Schewerdtfeger, Julie and Chan, Angela. "Counting Collections." Teaching Children Mathematics March 2007. Counting Collections was developed by Megan Franke, Ph.D, UCLA

For further correspondence, please email Allison Hintz (ahintz@uwb.edu or Teresa.lind@rentonschools.us

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Instructional Decisions to Consider	Notes
What size count is appropriate for my students? Which students are ready to count sets of objects?	
How will I group my students? <ul style="list-style-type: none"> • Individual or pairs? • Based on social skills or math skills? 	
How often will we count collections? How much time will we spend for each session?	
What are the social goals for the lesson? Examples: <ul style="list-style-type: none"> • Count with my partner. (Make decisions about where to work, how to count, how to record) • Stay on task. 	
What are the mathematical goals for the lesson? Examples: <ul style="list-style-type: none"> • Keep track of the items counted. • Record efficiently. (Represent with tallies, x's, or circles, rather than drawings.) • Record in a way that shows how you counted. • Count efficiently. (Use groups to count.) • Decompose numbers to count. (Counting by 10s and 2s rather than 12s) 	
What do I want to pay attention to as I observe students? How will I ensure that I observe all students over time?	
Social Challenges	
<ul style="list-style-type: none"> • Students may have difficulty staying on task. • Students may have difficulty working with a partner or sharing the task. 	
Math Challenges	
<ul style="list-style-type: none"> • Students may get distracted by the items themselves. They may sort objects by color or size before they begin to count. • Students misstep at predictable or consistent numbers. (decades 29..30; century marks 399...400; counting by tens 100, 110, 20) • Students can count higher than they can record, 	

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especially if they are counting by ones.

- Students may not record the way they counted. (For example, they counted by tens, but recorded ones)

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Lesson Planner	Lesson Notes
<p>Mathematical Goal</p>	
<p>Social Goal</p>	
<p>Launch (5min.)</p> <p>When you first begin counting collections you may want to model:</p> <ul style="list-style-type: none"> • How to work with a partner • Ways to keep track of your count • Ways you might record <p>In later lessons share student strategies (counting, grouping, or recording) from the last count.</p>	
<p>As students count...</p> <ul style="list-style-type: none"> • Try not to provide teacher directions about how to count. Let students develop their own strategies that make sense to them. • Be open to the various ways that students group objects • Ask students to show you how they counted. • Name a child's counting strategy and encourage other students to give various strategies a try. ("I see you put 5 beads in a cup and then counted up by 5s") • If students finish early, they can get another bag to count or to try to count their objects a different way. 	
<p>As you walk around...</p> <ul style="list-style-type: none"> • Take notes using the anecdotal record sheet • Are students able to keep track of what is being counted? How are students keeping track? <i>"How do you know which ones you've counted and which ones you haven't counted?"</i> • Are students working together? <i>"It looks like the two of you are using different strategies."</i> 	

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<p><i>Do you have a plan for how you will add your totals together?</i></p> <ul style="list-style-type: none">• Are students beginning to group objects? If so, how? Do they combine groups to make larger groups? <i>“Why did you decide to put these into ___ (cups of 5, 10, 50)”</i>• Can students count by 1s? 10s? 10s and 1s? <i>“How many cups did it take to get to 150? If you made another set of 10 cups how many would you’ve?”</i>• What strategies are students using to count by sets? <i>“What made this collection tricky to count?”</i>	
<p>Summary / Debrief</p> <p>Share student strategies based on the mathematical or social goals that you wanted to highlight. (Preselect 1-2 student strategies to share.)</p> <ul style="list-style-type: none">• Strategies for keeping track of how many we counted• Strategies for grouping• Strategies for counting sets of objects <p>Celebrate student successes!</p>	

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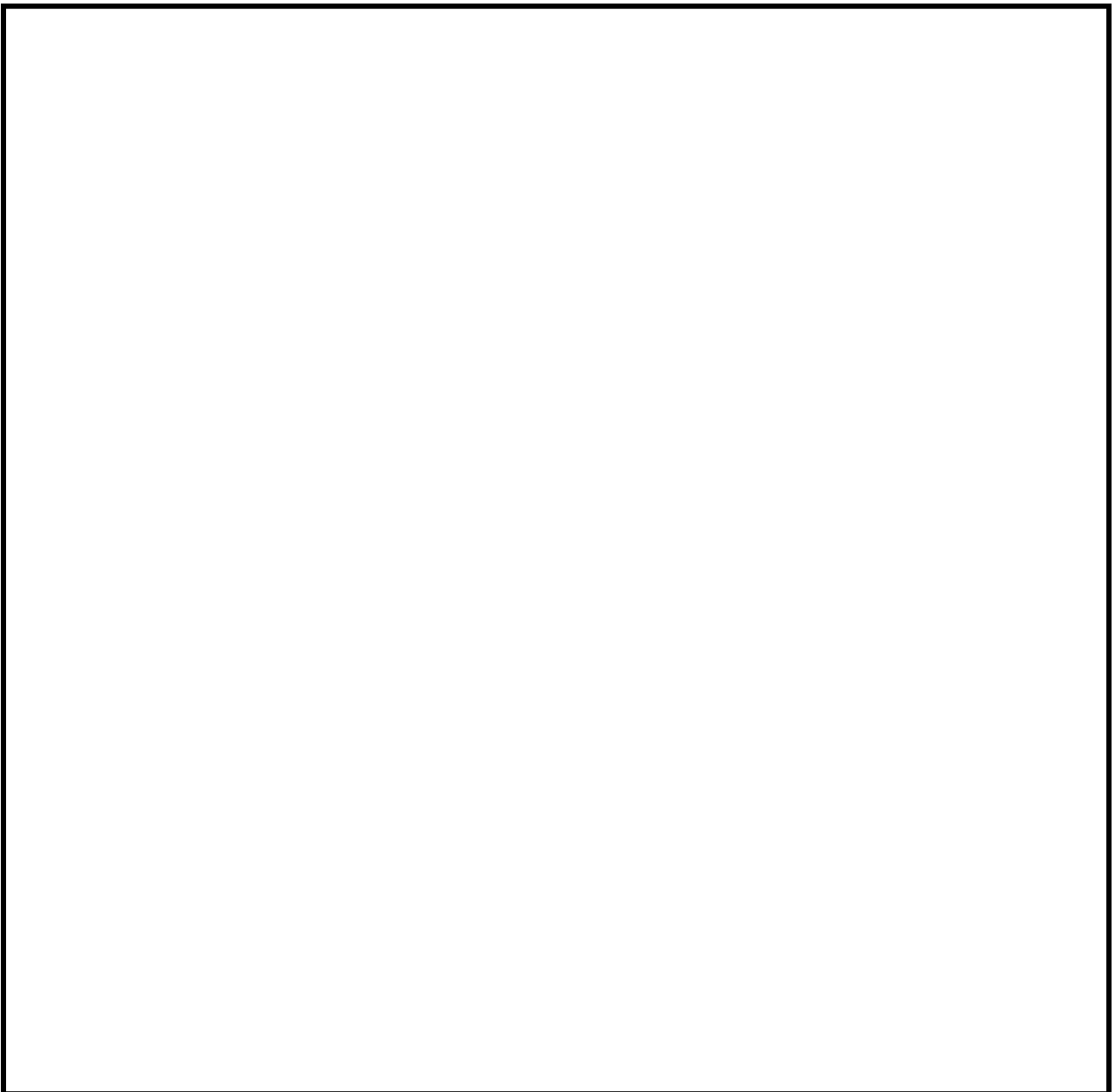
Names _____ & _____

We counted _____.

1st Estimate: _____ 2nd Estimate: _____

We had _____ items in our collection.

This is how we counted our collection:

A large, empty rectangular box with a black border, intended for students to draw or write about their counting process.

What is Number Sense?

Number sense develops gradually over time as a result of exploring numbers, visualising them in a variety of contexts, and relating them in ways that are not limited by traditional algorithms.

1. An awareness of the relationship between number and quantity
2. An understanding of number symbols, vocabulary and meaning
3. The ability to engage in systematic counting, including notions of cardinality and ordinality
4. An awareness of magnitude and comparisons between different magnitudes
5. An understanding of different representations of number
6. Competence with simple mathematical operations
7. An awareness of number patterns including recognizing missing numbers

Cardinality - the number of elements in a set or other grouping, as a property of that grouping.

Ordinality – relates to organization – first, second, third, etc.

Counting Collections

See handouts

Games

See handouts

University of Cambridge - NRICH

Number Sense and Place Value

<http://nrich.maths.org/10712>

Poly Plug

- A 5x5 grid
- Hide a rectangle, using color cards or ???
- Tell partner how many dots your rectangle has
- Try to find the rectangle in fewest number of guesses and draw it on a blank page

Some activities from the Virginia DOE:

<http://tinyurl.com/o9jkjg6>