

Counting Collections

Topics: Counting, skip counting, addition, multiplication (optional)

Materials: Paper, pencil, objects of many types (button, beans, stones, pencils, markers, blocks, etc.)

Target Grades: K, 1, 2, 3

Common Core: K.CC.A.1, K.CC.A.2, K.CC.A.3, K.CC.B.4, K.CC.B.5, K.MD.B.3, 1.NBT.A.1, 1.NBT.B.2, 1.NBT.B.2.a, 1.NBT.B.2.b, 1.NBT.B.2.c, 2.OA.C.4, 3.OA.A.1, MP1, MP6

Kids love to count things. This is a simple exercise, but a great way to get kids excited about arithmetic. Counting Collections also seeds ideas about how the place value system helps make counting work.

Counting Collections is a foundational structure you can come back to again and again. We'll describe the initial launch first, and then some variations to make the activity more sophisticated.

The Launch (~5 minutes)

Version 1. Set collections of objects in different places in the room. Examples might include cups of legos, straws, blocks, pencils, buttons, markers, etc. Make sure that there are enough collections with a small numbers of objects, as well as some with larger numbers.

Draw the students attention to the collections around the room. Without giving them any strategies to start, let them know that their job for the next half hour will be to take an inventory of the objects in the room—that is, to count how many objects are in each collection.

Students will work in pairs. Each pair will get to choose a collection and count it. For each collection, they will record what they counted, and how many objects were in that collection.

Main Activity (20 - 30 minutes)

The students count and record their numbers.

The teacher can use this time in many ways. She can observe how students are counting, and take notes on the strategies they're using, and where they are in their developing understanding of numbers. She might distribute 10s frames, rubber bands, cups, or other devices to help kids count or bundle objects. She might ask questions like:

“What strategies are you using to count?”

“What number do you find is easiest to count by?”

“Can you tell how your partner is counting by looking at their picture?”

Wrap Up (5-10 minutes)

You don't have to wrap up this activity after the first day; Counting Collections can be something to return to, to let students test their methods on larger and more difficult groupings of objects.

However, it can be nice to discuss different strategies along the way. After students have done their counting for the day, ask for reports on counts, and discuss strategies kids used for counting. Was it easier to count by 2s? By 10s? What other strategies did people have? Did all the groups who counted the same thing get the same answer? Which counting methods are most accurate? Which are easiest?

Why We Love Counting Collections

So much of the work of teaching math in elementary school is about sharing arguments that make counting faster and more efficient. But why should the students care if they don't need to count anything? By making counting explicit, hands-on, and fun, this activity actually provides a motivation for the mathematics of place value (counting by ones, tens, and hundreds), addition (counting two or more smaller groups and adding them together), and multiplication (skip counting, arranging objects in arrays). Not only that, each new method and algorithm can be immediately tested in a concrete setting. Counting Collections are an indispensable tool for young children.

Tips for the Classroom

1. The recording forms for Counting Collections can get gradually more complicated. At first, the form might just contain a place for what and how many students counted. A more advanced form might contain an estimation (made before the count), space to record a drawing of how the students counted, or groupings of the number of tens and ones (or hundreds, tens, and ones) included in the final count.
2. You can differentiate Counting Collections most easily by including collections with many or fewer objects to count.
3. For a more advanced (but less hands-on) launch, you can try asking students what else they see in the room that they might count. They might list things like windows, chairs, tables, ceiling tiles, as well as blocks, markers, etc. One of my favorite experiences with Counting Collections came when a student suggested counting all the dots on all the dice in the classroom. This project ended up being quite challenging and rewarding for the students, who developed beautiful ideas on how best to group the dots.

Names: _____ & _____

Counting Collections

What we are counting: _____

Math Sketch



Names: _____ & _____

Counting Collections

What we are counting: _____

Estimation: 10 20 30 40 50 60
 70 80 90 100 110 120

Math Sketch



Names: _____ & _____

Counting Collections

What we are counting: _____

Estimation: 10 20 30 40 50 60
 70 80 90 100 110 120

Math Sketch



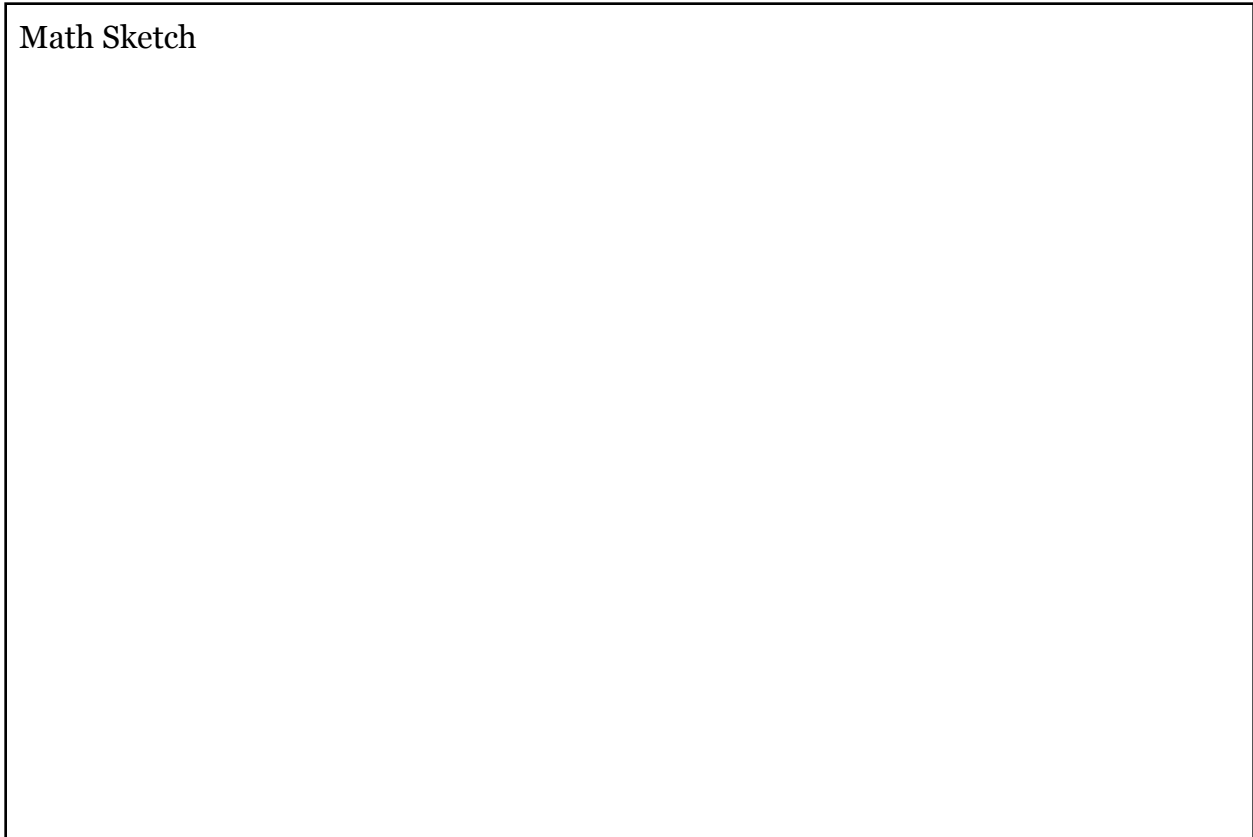
Names: _____ & _____

Counting Collections

What we are counting: _____

Estimation: 20 40 60 80 100 120
 140 160 180 200 220 240

Math Sketch



Tens	Ones

Names: _____ & _____

Counting Collections

What we are counting: _____

Estimation: 20 40 60 80 100 120
 140 160 180 200 220 240

Math Sketch

Hundreds	Tens	Ones

