

Writing and Representing Numbers to 20

Key Content from This Unit:

In kindergarten, students count to 100 by ones and tens. They count forward from a given number within the known sequence. Students write numerals 0–20 and represent a number of objects with a written numeral 0–20 (with 0 representing a count of no objects).

This unit finalizes counting and cardinality to 100. Counting skills are only focused on in kindergarten and are the foundation for developing an understanding of number and computational skills in the other primary grades. Much of the focus in this unit is on writing, representing, composing and decomposing the “tricky teens”.

Vocabulary to Know:

Cardinality: knowing that the number word said tells the quantity you have and that the number you end on when counting represents the entire amount counted.

Number: describe quantities or values, i.e., 4 is a number that is one less than 5, but one more than 3.

Numeral: symbols used to represent numbers, the shape itself without value, i.e., the numeral 1 is formed with a straight line down.

Quantity: the amount or number

Rote count: counting by memory, does not require an understanding of quantity, but is an important first step.

What came before this:

Early in the year, kindergarteners develop their counting and cardinality skills as they rote count to 50 by ones. They write numerals 0–10 and represent a number of objects with the numeral. Students count to answer “how many?” for up to 10 arranged or 10 scattered objects. In Unit K.2.1, they identify the number of objects as greater than, less than or equal to another quantity of objects.

What comes after this:

Later in the year, students rote count to 100 by tens. They also count to answer how many for up to 20 arranged and 20 scattered objects.

“As students gain understanding of numbers and how to represent them, they have a foundation for understanding relationships among numbers.”

–Principles and Standards of School Mathematics

Common Core Focus:

- Count to 100 by ones and tens beginning with any number within 100.
- Write numerals 0–20.
- Represent up to 20 objects with a numeral and given a number 1–20, count that many objects.
- Compose and decompose numbers from 11–19 into ten ones and some further ones, and record each composition or decomposition by a drawing or equation.
- Understand that numbers 11–19 are composed of 10 ones and 1, 2, 3, 4, 5, 6, 7, 8, or 9 ones.

K.CC.1, K.CC.2, K.CC.3, K.NBT.1

Spotlight on the Math Practices

Look for and Make Use of Structure

Mathematically proficient students look closely at and use patterns in the numbers around them. In this unit, students *make use of structure* when they:

- Recognize 10 ones is the same as one 10.
- Understand that numbers 11-19 are composed of 10 ones and 1, 2, 3, 4, 5, 6, 7, 8, or 9 ones.
- A teen number can be represented by that many ones OR as a ten and some ones.

How Can You Help?

- Have your child count object as often as possible – the number of cups in the stack, the number of clips in a pile, the number of hops on the sidewalk.
- Talk to your child about the teen numbers and how they can be represented.
- Practice writing numerals 11-20 in tactile ways – shaving cream, sand, in a baggie of paint or gel.
- Ask your child to count, starting from a different number each time.

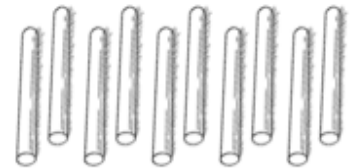
KEY MATHEMATICAL MODELS of the COMMON CORE Bundles

A model used primarily in grades K-2, bundles are groupings of ones and tens, and hundreds in grades 1 and 2. Students or teachers easily make them by placing a rubber band or twist tie around straws, popsicle sticks, or coffee stirrers. These simple models help students understand that a teen number is made of one ten and some ones and to help them visualize counting by tens. Bundles are a foundation to the more abstract place value chart, and finally to working with pure numbers.

Bundled numbers can also be “unbundled”, i.e. a group of 10 can be broken apart into 10 ones when needed for subtraction. Bundling and unbundling are critical skills for students to have as a tool for our continued work with place value and operations and lay the foundation for more advanced computation.

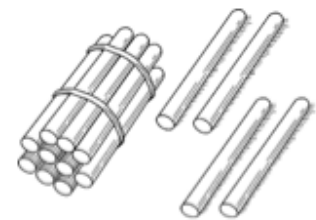
14 can be represented by

14 ones



OR

1 bundle of ten and 4 ones



Some Resources to Help at Home

- Teen numbers song <https://www.youtube.com/watch?v=pxyde-OxerA>
- Another Numbers in the Teens song <https://www.youtube.com/watch?v=uedvwH6Ay18>
- Ten-frame games from NCTM (note options on the left) <http://illuminations.nctm.org/Activity.aspx?id=3565>
- Information and activities for counting <http://www.k-5mathteachingresources.com/Counting-Activities.html>
- Interactive counting games <http://www.topmarks.co.uk/maths-games/5-7-years/counting>
- Count Your Chickens http://pbskids.org/curiousgeorge/games/count_your_chickens/count_your_chickens.html
- Counting by 1s to 100 <http://www.schooltube.com/video/7502b16ceeca2a1fc4d2/Counting-By-Ones-Song>