

Grade K Math Unit 6-Numbers and Operations in Base Ten

UNIT OVERVIEW

This cluster is connected to the Kindergarten Critical Focus Area #1, **Representing and comparing whole numbers, initially with sets of objects.**

Students will compose and decompose numbers from 11 -19 into tens, ones, and some further ones

STANDARDS

CC_Common Core State Standards - Mathematics (2010) - k

Domain K.NBT Number and Operations in Base Ten

Cluster Statement *Work with numbers 11–19 to gain foundations for place value.*

Standard K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

CONTENT ELABORATIONS

K.NBT.1 is the first time that students move beyond the number 10 with representations, such as objects or drawings. The spirit of the standard is that students separate out a set of 11-19 objects into a group of ten objects with leftovers. This ability is a pre-cursor to later grades when they need to understand the complex concept that a group of 10 objects is also one ten (unitizing). Ample experiences with ten frames will help solidify this concept. Research states that students are not ready to unitize until the end of first grade. Therefore, this work in Kindergarten lays the foundation of composing tens and recognizing leftovers.

Special attention needs to be paid to this set of numbers as they do not follow a consistent pattern in the verbal counting sequence.

K.NBT.1 -Eleven and twelve are special number words

- "Teen" means one "ten" plus ones

-The verbal counting sequence for teen numbers is backwards - we say the ones digit before the tens digit.

-In order for students to interpret the meaning of written teen numbers, they should read the number as well as describe the quantity. For example, for 15, the students should read "fifteen" and state that it is one group of ten and five ones and record that $15=10+5$

MP.1, MP.2, MP.3, MP.4, MP.5, MP.6, MP.7, MP.8 should be emphasized.

UNIT VOCABULARY

compose

decompose

BIG IDEAS

ENDURING UNDERSTANDINGS

ESSENTIALS QUESTIONS

Choose a few questions based on the needs of your students

- Various combinations of numbers can be used to represent the same quantity.
- Problems can be solved in different ways.
- Problems can be modeled using objects, pictures, and words.
- How can I solve and represent problems using objects, pictures, words and numbers?
- How can I use different combinations of numbers to represent the same quantity?
- How can strategies help us solve problems?
- How can you model a math problem with objects or pictures?
- How do you know when your answer makes sense?
- What happens when I decompose a quantity?
- What happens when I join quantities together?

CONNECTIONS

In **Critical Focus Area #1**, Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations. Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

Work in this unit is also connected to **K.CC.3, K.RI.3; K.W.2**

Standards for Mathematical Practice (SMP)

MP.1 Make sense of problems and persevere in solving them

MP.2 Reason abstractly and quantitatively

MP.3 Construct viable arguments and critique the reasoning of others

MP.4 Model with mathematics

MP.5 Use appropriate tools strategically

MP.6 Attend to precision

MP.7 Look for and make use of structure (Deductive reasoning)

MP.8 Look for and express regularity in repeated reasoning (Inductive Reasoning)

WORK WITH NUMBERS 11-19 TO GAIN FOUNDATIONS FOR PLACE VALUE

CONTENT		SKILLS
A.	Compose and decompose numbers from 11 to 19 into ten ones and some further ones	Compose and decompose numbers from 11 to 19 into ten ones and some further ones
		1. Know that a (spoken) number (11-19) represents a quantity. 2. Compose numbers 11-19 into ten ones and some further ones using objects and drawings. 3. Decompose numbers 11-19 into ten ones and some further ones using objects and drawings. 4. Understand that numbers 11-19 are composed of 10 ones and one, two, three, four, five, six, seven, eight, or nine ones. 5. Represent compositions or decompositions by a drawing or equation.

UNIT RESOURCES

McGraw-Hill, **My Math** Chapter 7

Georgia Math Framework Grade K Unit 3

Number Talks by Sherry Parrish

Common core Model CurriculumDebbie Diller Math Work Stations materials and process

Manipulatives – including, but not exclusively: pattern blocks, snap cubes, counting disks, counting bears, a variety of counters, buttons, base ten blocks, dot dice, numeral dice, spinners, number cards, five and ten frames, dominoes

Games that require students to count on from a previous count