MA.1.NSO.1.3

Overarching Standard: MA.1.NSO.1 *Extend counting sequences and understand the place value of two-digitnumbers.*

Benchmark of Focus

MA.1.NSO.1.3.: Compose and decompose two-digit numbers in multiple ways using tens and ones. Demonstrate each composition or decomposition with objects, drawings and expressions or equations.

Example: The number 37 can be expressed as 3 *tens* + 7 *ones*, 2 *tens* + 17 *ones* or as 37 *ones*.

Related Benchmark/Horizontal Alignment

- MA.1.NSO.2.2/2.3/2.4/2.5
- MA.1.AR.2.2

Vertical Alignment

Previous Benchmarks

- MA.K.NSO.2.2
- MA.K.AR.1.2

Next Benchmarks

- MA.2.NSO.1.2

Terms from the K-12 Glossary

- Expression
- Equation

Purpose and Instructional Strategies

The purpose of this benchmark is for students to identify ways that numbers can be written flexibly using decomposition. In Kindergarten, students decomposed numbers from 0 to 10 intotwo numbers and decomposed numbers from 10 to 20 into a ten and the corresponding ones. *(MTR.2.1)*

- Instruction includes the use of base ten manipulatives and place value disks for studentsto develop a conceptual understanding that 3 *tens* + 7 *ones* is the same as 2 *tens* + 17 *ones*. *(MTR.5.1)*
- Instruction includes the idea that the equal sign means “same as” and is used to balanceequations.

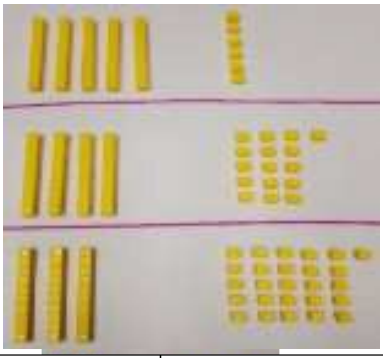
Common Misconceptions or Errors

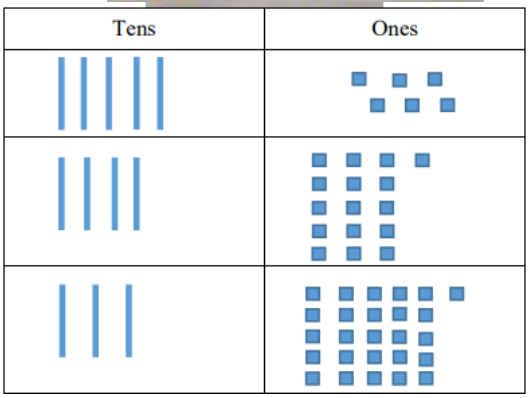
- Students may not recognize that larger sets of ones can also be seen as tens and ones.
  - For example, 15 *ones* is the same amount as 1 *ten* + 5 *ones*. The use of base

tenmanipulatives can help model for students that 15 *ones* units is the same as amount at 1 *ten* + 5 *ones* though it is arranged differently. *(MTR.2.1)*

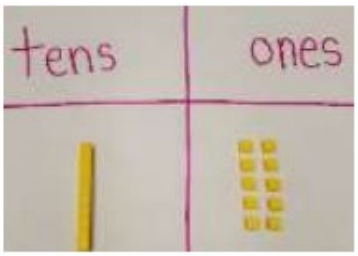
Strategies to Support Tiered Instruction

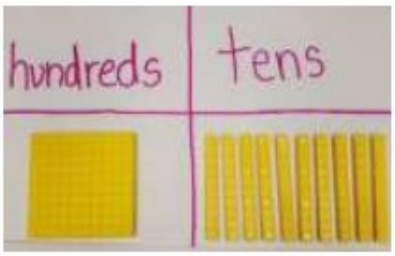
- Instruction provides opportunities to use base ten blocks and a place value chart. Teacher provides a 2-digit number, like 56, and ask students to exchange one ten for ones. Next, the teacher asks students to represent the value using a drawing. Then, students are asked to explain what their new model shows and how it is similar and different from the original representation of the number. Students share the different representations with the group and again compare the similarities and differences. Finally, students name/identify the different ways to name the values (e.g. grouping the tens into the ones, 5 tens and 6 ones, 4 tens and 16 ones, or 3 tens and 26 ones, etc.)
    - Example:





Teacher models using connecting cubes or break-apart base ten blocks. Students practice exchanging tens for ones and a hundred for tens. Students connect ten ones to create a rod, therefore showing that the ten ones are equivalent to one ten. With each exchange, the students represent using both the original representation and the new representation in a drawing on a place value chart. At every opportunity, ask the students to name/identify the values they are using in the numbers.





Questions to ask students:

- Ask: *How can you decompose the number 45 using tens and ones?*
  - Sample answer that indicates understanding*: I can represent 45 using 4 tens rods and 5 unit cubes. 40 and 5 makes 45, or 40+5=45.*
- Ask: *What's another way to represent 45 using tens and ones?*
  - Sample answer that indicates understanding: *I can use 3 tens rods and 15 unit cubes. 30 and 15 makes 45.*
- Ask: *How is 5 tens and 23 ones the same as 73 ones?*
  - Sample answer that indicates understanding: *23 has 2 tens. If you add 5 more tens that is the same as 7 tens. Both numbers would have 3 ones.*

Instructional Tasks

Instructional Task 1
(MTR.2.1)

Part A. Look at each equation in the table below. Circle true or false for each expression.

Equation	True or False
2 *tens* + 4 *ones* = 1 *ten* + 14 *ones*	True False
4 *tens* + 0 *ones* = 40 *tens*	True False
6 *tens* + 13 *ones* = 83	True False
8 *tens* + 16 *ones* = 96	True False

Part B. Choose one true statement from above and explain how you know it is true. Chooseone false statement from above and explain how you know it is false.

Instructional Items

Instructional Item 1

Which of the following are ways to make 43?

a. 40 *tens* + 3 *ones*
b. 4 *tens* + 3 *ones*
c. 30 *ones* + 13 *ones*
d. 3 *tens* + 13 *ones*
e. 3 *tens* + 3 *ones*

Instructional Item 2

Using base ten manipulatives or drawings show at least two different ways to make the number 62.

Additional Resources:

CPALMS Resources

Blog Post: http://smathsmarts.com/theres-more-than-one-way-to-write-a-number/

Decomposing Two-Digit Numbers into Tens and Ones

Resources/Tasks to Support Your Child at Home:

- Have your child use a deck of cards Ace-9 (Ace represents 1). Have them pull two cards to create a two-digit number. Have them find all the other ways to represent 45, such as: 3 tens and 15 ones, 2 tens and 25 ones, 1 ten and 35 ones, or 45 ones.
- Extend to have your child decompose 45 using equations. Such as: 3 tens and 15 ones, represent as 30+15=45.
- Challenge your child and give them a decomposed two-digit number. Have them determine the value by composing the number.
- Use paper base ten blocks. Have your child build a number using the least number of blocks possible. (Example: if the number was 35, the least number of blocks would be 3 tens and 5 ones). Next, have your child build the number another way.