MA.K.AR.1.2

Overarching Standard: MA.K.AR.1 *Represent and solve addition problems with sums between 0 and 10 andsubtraction problems using related facts.*

Benchmark of Focus

MA.K.AR.1.2: Given a number from 0 to 10, find the different ways it can be represented as the sum of two numbers.

Benchmark Clarifications

Clarification 1: Instruction includes the exploration of finding possible pairs to make a sum using manipulatives, objects, drawings, and expressions; and understanding how the different representations are related to each other.

Related Benchmark/Horizontal Alignment

- MA.K.NSO.1.1
- MA.K.NSO.2.1
- MA.K.NSO.3.1/3.2
- MA.K.AR.2.1

Vertical Alignment

Previous Benchmarks	Next Benchmarks
• VPK	• MA.1.AR.1.1 • MA.1.NSO.2.1

Terms from the K-12 Glossary

- Equation
- Expression

Purpose and Instructional Strategies

The purpose of this benchmark is to allow students to continue to flexibly discover various sums as they work towards procedural reliability in Kindergarten, and automaticity in grade 1 *(MTR.2.1, MTR.5.1)*.

- Instruction allows students to see multiple ways to add numbers to make a given number, such as 1 + 3, 2 + 2, and 3 + 1 are all ways to make 4 (*MTR.2.1)*.
- Instruction includes the use of manipulatives and pictorial representations.
- Instruction includes the use of context to provide a purpose for adding *(MTR.7.1)*.
- Instruction includes making connections to subtraction equations related to addition equations *(MTR.5.1)*.

- Items include equations with one or both addends unknown.

- Though there is no expectation that students name the commutative property, they should begin to discover the connections and patterns and recognize that if $a + b = 10$, then
$b + a = 10$.

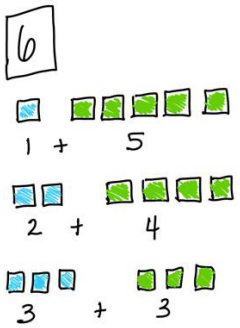
Common Misconceptions or Errors

- Students may not connect pairs of addends through the commutative property. Though there is no expectation that students name the commutative property, they should begin to discover the connections and patterns and recognize that if $a + b = 10$, then $b + a = 10$.
- Students may not recognize that multiple pairs of addends represent the same sum.
- Students may not recognize that the two numbers don't have to be different.
  - For example, if the given number is 8 a student may not think to represent it as 4 + 4.

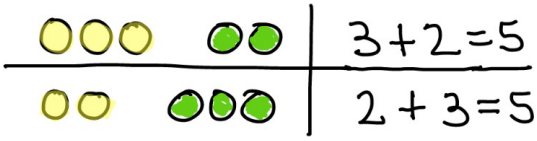
Strategies to Support Tiered Instruction

- Teacher provides opportunities to solve multiple expressions with the same sum using snap cubes (representing each addend with a different color).
  - For example, students use snap cubes to build 3 + 4, 2 + 5, and 1 + 6 to represent a sum of seven.

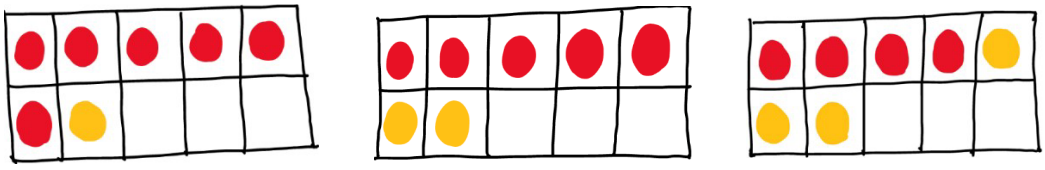
- Instruction provides opportunities to build multiple pairs of addends to represent given numbers 1 – 10 using snap cubes, two-color counters, hands, etc.
  - For example, given the number 6, students model 1 + 5, 2 + 4, and 3 + 3 using snap cubes. Process repeats with multiple numbers, including odd numbers, so students begin to recognize that some numbers have repeating addends and others do not. Discussion should focus on the fact that the two addends can be the same number.



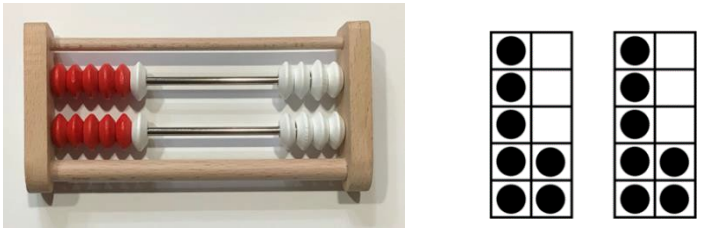
- Instruction includes the opportunity to build sets of five using two-color counters to represent the commutative property.
    - For example, students build 3 + 2 and 2 + 3 and 4 + 1 and 1 + 4. Students should write an equation to represent the counters.
      Teacher asks: How is the set of 3 + 2 and 2 + 3 the same? How are they different? Does it matter which addend comes first? Do you get the same sum if you add them in a different order?
      Students should use the models to develop the understanding that the order of the addends does not change the sum.



- Teacher provides instruction for using two-color counters to decompose a number into multiple addends that represent the same sum.
    - For example, students decompose a group of 7 counters into 6 red/1 yellow, 5 red/2 yellow, and 3 red/4 yellow. They write an equation for each representation to show that multiple pairs of addends can make the same sum.



- Instruction includes the opportunity to use addend cards to build equations that represent doubles facts. Alternatively, math racks, dot cards, ten frames, etc... can be used in place of addend cards.
    - For example, students are provided with array cards that represent multiple numbers. Students will need more than one of each card. Students use the cards to build equations for doubles facts and record the equation in writing.



Questions to ask students:

What is one way to make 8 by adding two numbers together? Represent it with an equation.

- Sample answer that indicates understanding: *4 + 4 = 8*

What is another way to make 8 by adding two numbers together?

- Sample answer that indicates understanding: *Another way to make 8 is 2 + 6*

How can you prove that 5 and 3 make 8 using counters?

- Sample answer that indicates understanding: *I have 5 red counters and 3 yellow counters. When I count the total number of counters together there are 8. OR I began at 5 on the number line and jumped 3 more times. I stopped at 8.*

Instructional Tasks

Instructional Task 1

Show a student a number of counters from 0 to 10. Cover some of the counters and ask the student how many counters are hidden. Give the student an opportunity to record an equation for the situation. Repeat the task by covering different amounts of counters and/or starting with a different amount of counters.

Instructional Task 2

Write as many equations as you can to get to a sum of 9, a sum of 5, a sum of 6 and a sum of 7.

Instructional Items

Instructional Item 1

Find three different ways to get to 8 by adding 2 numbers together.

Instructional Item 2

Complete the equations to show different ways to make 7.

$5 + \_\_ = 7$

$\_\_ + 4 = 7$

$7 = \_\_\_ + \_\_\_$

Additional Resources:

CPALMS

YouTube Video: Kindergarten Addition Composing Numbers to 10

Resources/Tasks to Support Your Child at Home:

Use small objects around the home (dry beans, coins, Cheerios, etc.) and have your child model composing numbers within 10 using the objects.

K5 Learning Worksheets: Making Numbers Up to 10 (click on worksheet #1-6 to get different numbers to decompose)

Khan Academy Practice: Add within 10