MA.K.NSO.3.1

Overarching Standard: MA.K.NSO.3 Develop an understanding of addition and subtraction operations with one-digit whole numbers.

Benchmark of Focus:
MA.K.NSO.3.1 Explore addition of two whole numbers from 0 to 10, and related subtraction facts.

Benchmark Clarifications
Clarification 1: Instruction includes objects, fingers, drawings, number lines and equations.

Clarification 2: Instruction focuses on the connection that addition is "putting together" or "counting on" and that subtraction is "taking apart" or "taking from." Refer to Situations Involving Operations with Numbers (Appendix A).

Clarification 3: Within this benchmark, it is the expectation that one problem can be represented in multiple ways and understanding how the different representations are related to each other.

Related Benchmark/Horizontal Alignment
- MA.K.NSO.1.1/1.2
- MA.K.NSO.2.1/2.2/2.3
- MA.K.AR.1.1/1.2/1.3
- MA.K.AR.2.1

Vertical Alignment

Previous Benchmarks	Next Benchmarks
[VPK](VPK)	MA.1.NSO.2.1 MA.1.NSO.2.2

Purpose and Instructional Strategies

The purpose of this benchmark is to begin building strategies for addition and subtraction using skills developed through previous benchmarks; such as counting forwards and backwards, counting objects and using number lines. Procedural reliability with these same addition and subtraction facts is expected in MA.K.NSO.3.2, and automaticity is to be achieved in grade 1 (MA.1.NSO.2.1).
- Instruction encourages students to use and explore various strategies as they begin to discover which strategies are best for them and best for given situations. *(MTR.5.1, MTR.2.1)*

- o Strategies include the use of manipulatives; the use of fingers, counting both sets separately and combining or removing, counting on and counting back, and using the relationship between addition and subtraction.
- Instruction includes the use of manipulatives and pictorial representations.
- Instruction includes multiple representations of expressions and equations. *(MTR.2.1)*
  - o For example, 3 + 7 =__and__= 3 + 7.
- Instruction includes examples of all four situations for addition and subtraction asdescribed in Appendix A.
- Instruction includes the use of context to provide a purpose for adding or subtracting, and to develop conceptual understanding for addition and subtraction. *(MTR.7.1)*

Common Misconceptions or Errors
- Students may confuse addition situations with subtraction situations based on "cue" or"key" words.
  - o For example, in the word problem "Steve has 7 crayons. Steve has 3 more crayons than Joane. How many crayons does Joane have?" the word "more" may make students think to add, though the context is actually subtraction.
- Students may think there is only one correct way of solving a problem. Many problems can be solved by using addition or subtraction.
- After mastering one addition or subtraction situation students may feel that there are no others to learn.
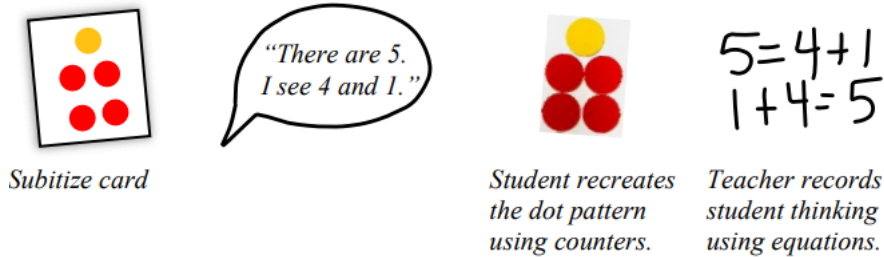
Strategies to Support Tiered Instruction
- Instruction includes opportunities to use various manipulatives to model addition and subtraction situations and record the equations being modeled. Instruction can include physically breaking apart a whole to model subtraction equations.

$$3+2=5$$
$$2+3=5$$

$$4+2=6$$
$$2+4=6$$
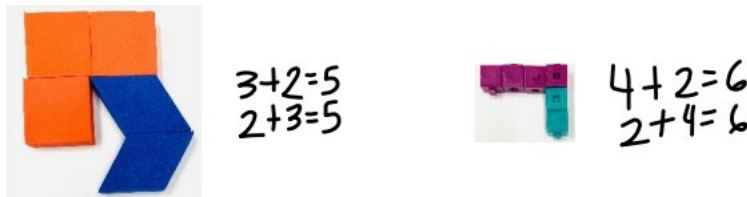
- Instruction includes removing the equation symbols to both isolate and focus on the concept that two parts combine to make a whole. To support language development of equation representations, describe the concepts of adding to and taking away as "3 and 4 make 7" or, "7 take away 4 is 3."
- Teacher provides opportunities for subitizing tasks in which cards with dot patterns can be used to visualize the pattern and describe the way it is seen. Teacher records the combinations of numbers that students use to help make their thinking visual.
  - o For example, subitize cards can include dots with two different colors to enhance distinction between quantities within a total.

- o   For example, students may use counters to match the dot patterns on the cards and record an equation that matches.

Subitize card

"There are 5. I see 4 and 1."

Student recreates the dot pattern using counters.

Teacher records student thinking using equations.

$$5 = 4 + 1$$
$$1 + 4 = 5$$

Questions to ask students:

- What is the action in the problem?
  - o   *Sample answer that indicates understanding:* putting together, joining, adding to, taking from, separating, etc.

- How would you model the situation "Molly had 4 bracelets. Her sister gave her three more. How many bracelets does Molly have?"
  - o   *Sample answer that indicates understanding:* Students are able to correctly identify the action and describe that Molly is getting more bracelets. Student uses fingers, manipulatives, drawings, etc to show that Molly started with 4 and then added on 3 more. They should be able to use their model to determine that Molly now has 7 bracelets.

- Tell me a story that goes with the expression 6 − 2?
  - o   *Sample answer that indicates understanding:* Students are able to correctly connect a story that shows two taken from 6 or 6 separated into 2 and some more.

Instructional Tasks
Instructional Task 1 (MTR.4.1)
   In a small group, provide students with various tools for adding and subtracting (i.e., numberlines, counters, bears, paper clips, paper and crayons). Present an expression, both verbally and in written form, and instruct students to find the sum or difference using any tool or strategy they feel comfortable with. Once everyone is comfortable with their solutions, allow students the opportunities to share their solutions and methods. Use the sharing as an opportunity to discuss various methods and strategies, being sure to validate each. Efficiency is not the goal here, so any accurate strategy is valid, especially when it deepens understanding.

Instructional Items

Instructional Item 1

To count the flowers shown to the right, James recognizedthat there are 4 orange flowers and 2 pink. He started at 4,then he counted on, "5, 6," to find that there are 6 total flowers.

How could you use James's strategy to find 6 + 3?How many orange flowers are there?
How many pink flowers are there?How many flowers are there in all?

Instructional Item 2

Ashley and Larry are coloring a picture. Ashley has 10 crayons and shares 4 crayons withLarry. How many crayons does Ashley have left?

If Larry started with 1 crayon, how many does he have now? How many more crayons does Ashley have than Larry?

Additional Resources:
- CPALMS: MA.K.NSO.3.1
- Khan Academy Tutorial Video: Add and Subtract Pieces of Fruit
- Khan Academy Tutorial Video: Intro to Addition
- Khan Academy Tutorial Video: Intro to Subtraction
- SmathSmarts Blog – Joining and Separating

Resources/Tasks to Support Your Child at Home:

- Use small objects around the home (dry beans, Cheerios, etc.) and have your child model simple addition and subtraction problems using the small objects.   Questions to ask your child:
  - What is the action in the problem?
  - How do you know you are putting together, joining, or adding to?
  - How do you know you are taking from or separating?

- Provide students an expression such as 3 + 5. Have students tell their own story that would represent the problem. Next, allow students to act it would with fingers, objects or drawings to find the answer.

- Play a variety of adding and subtracting games!

  Splashlearn Online Game: [Model to Add Numbers](#)
  Splashlearn Online Game: [Count On to Add within 10](#)
  Splashlearn Online Game: [Take Away to Match the Number](#)
  Splashlearn Online Game: [Subtract Using Pictures](#)