

MA.1.NSO.2.1

Overarching Standard: *MA.1.NSO.2 Develop and understanding of addition and subtraction operations with one- and two-digit numbers.*

Benchmark of Focus

MA.1.NSO.2.1: Recall addition facts with sums to 10 and related subtraction facts with automaticity.

Related Benchmark/Horizontal Alignment

- MA.1.NSO.1.1
- MA.1.AR.1.1/1.2
- MA.1.AR.2.1/2.2/2.3

Vertical Alignment

Previous Benchmarks

MA. K.NSO.3.2

Next Benchmarks

MA.2.NSO.2.1

Terms from the K-12 Glossary

- Automaticity
- Expressions
- Equations

Purpose and Instructional Strategies

The purpose of this benchmark is for students to continue through exploration and reliability towards efficiency and eventually automaticity. In Kindergarten, students added two one-digit numbers with sums from 0 - 10 and they subtracted by using related facts with procedural reliability. Instruction for Kindergarten focused first on exploring to build understanding, then students focused on selecting reliable methods.

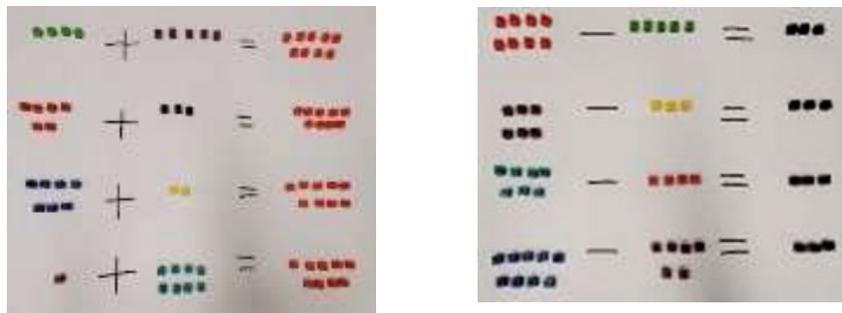
- Instruction focuses on the fact that automaticity is usually the result of repetition and practice.
- Instruction of this benchmark should not be in isolation from other benchmarks that emphasize understanding.
- Instruction should not focus on speed or competition in the classroom.
- The correct way to assess automaticity is to observe students within the instructional setting as they complete problems that involve addition and subtraction. Even though such problems can typically be done without automaticity they will be done with less effort with automaticity.

Common Misconceptions or Errors

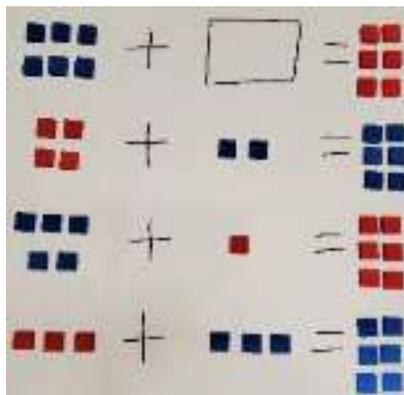
- Students may encounter difficulty with knowing all the ways a number can be decomposed. In these cases, it is helpful to let students explore decomposing a given number such as 9 and having them find all the possible ways to get to nine when adding ($0 + 9$, $1 + 8$ and $2 + 7$).
- Students may inappropriately substitute automaticity for understanding when understanding of context is required.
 - For example, a student may see a problem containing the numbers 5 and 3 and automatically think the answer is 8 without first using their understanding to determine what operation is required for the context of the problem.

Strategies to Support Tiered Instruction

- Teacher provides instruction with the addition expression, $4 + 5$ and has students provide the sum. Once students have given the correct sum of 9, teacher asks "Is there another fact with the same sum?" If students are able to provide another addition expression, ask them to find another one. Repeat with subtraction expression, $8 - 5$. Students should provide the difference of 3. Students may need to use manipulatives to assist in determining the difference. Once students have given the correct difference, teacher asks "Can you give me a related subtraction equation?"
 - For example, the teacher asks students to create a real-world scenario using a set of given numbers, 4, 3 and 7. Once students have provided an appropriate real-world scenario, discuss what might happen with the problem if the scenario is changed to the inverse operation. The teacher may find that students are not creating a true equation from the scenario they shared. Consider discussing how the numbers are related and how they are affected when the inverse operation is used.



- Teacher provides a manipulative like two color counters, asking students to create a representation of 6. Depending on how they represent the number six, the teacher has students separate the counters into two addends.
 - For example, they may have 6 red counters and 0 blue showing. The equation is $6 + 0 = 6$. Ask them how they could create a different representation, but with the same sum. Continue this manipulation of the counters until student can identify all sets of two addends that equal 6.



- Teacher provides a real-world problem using numbers up to 10.
 - For example, Gavin has 8 toy cars. His brother takes 3 of his toy cars. How many toy cars does he have now? Students can use a manipulative to help solve the problem. Teacher can act out the scenario with students. Then, the teacher represents the problem in an equation.

Questions to ask students:

- **How would you solve $4 + 5$? What strategy could you use?**
 - Sample answer that indicates understanding: *I can break apart the 5 into $4 + 1$. I know that $4 + 4 = 8$ and 1 more is 9.*
- **How can you make a model of the fact that you solved?**
 - Sample answer that indicates understanding: *Student currently models a problem using a concrete model or pictorial representation.*
- **Display a related addition and subtraction fact. What do you notice about these two equations?**
 - Sample answer that indicates understanding: *They have the same numbers but in different order. They are part of the same fact family.*

Instructional Tasks

Instructional Task 1 (MTR.4.1)

Part A. Ryan has 8 apples. His dad asked him to put the apples into 2 baskets. What are all the ways Ryan could put the apples into the baskets?

Part B. With a partner, compare your ways and see if you found all the ways Ryan could have put the apples into the baskets.

Instructional Items

The following items give examples of simple problems that can be used to observe automaticity in the classroom.

Instructional Item 1

Choose the subtraction equation can be used to solve $5 + 3 = ?$.

- $9 - 5 = 4$
- $8 - 5 = 3$
- $8 - 2 = 6$
- $7 - 5 = 2$

Instructional Item 2

Create two addition equations and two related subtraction equations using only the digits 4, 7, and 3

Instructional Item 3

Which of the following addition expressions have a sum of 10?

- $8 + 2$
 - $5 + 4$
 - $1 + 9$
 - $6 + 3$
 - $3 + 7$
 - $4 + 4$
-

Additional Resources:

[CPALMS Resources](#)

Read Aloud: The Fact Family by Sandy Turley

Blog post: [Assessing Mathematical Fluency](#)

Video: [Teaching the Think Addition Strategy for Subtraction](#)

Video: [Fact Family Triangles](#)

Video: [Destroying a Turkey Sandwich!](#)

[Relating Addition and Subtraction](#) (Khan Academy)

Resources/Tasks to Support Your Child at Home:

- Play ["Make a Ten"](#) with a deck of cards. First remove all face cards from the deck. Leave the Aces; they will count as 1. Deal out nine cards arranged in three rows and three columns. Students make a ten but picking up two cards, when put together, equal 10 (Ace & 9, 2 & 8, 3 & 7 etc). Once no more ten matches can be made, fill in the empty spaces with more cards. This game can be played individually or as a race between children. For additional support, children can count the number of symbols in the center of each card to make a ten.
- To practice related facts, give your child three numbers and have them write an equation to show how these numbers are related to each other. For example, you can give your child the numbers 3, 5, and 2. Have items (cheerios, blocks, skittles) available so your child can represent their thinking with a model. For instance, if they write down $3 + 2 = 5$, have them represent with the items to prove their thinking. Your child should be able to provide two addition sentences and two subtraction sentences with the given three numbers. To make the activity more interactive, write the numbers and symbols on different cups. Have the students represent their thinking with the items, allow them to rearrange the cups, and then record their equation. For the example above, you would need 6 cups and each cup should have the following: 3, 5, 2, +, -, =. Have your child manipulate the cups, represent their equation with the items, and if it makes sense, record their answer.
- Online Games: [Write the Related Facts](#) & [Block Buster](#)