MA.1.AR.2.1

Overarching Standard: MA.1.AR.2 *Develop an understanding of the relationship between addition and subtraction.*

Benchmark of Focus

MA.1.AR.2.1: Restate a subtraction problem as a missing addend problem using the relationship between addition and subtraction.

Example: The equation 12 − 7 = ? can be restated as 7 + ? = 12 to determine the difference is 5.

Benchmark Clarifications

Clarification 1: Addition and subtraction are limited to sums within 20 and related subtraction facts.

Related Benchmark/Horizontal Alignment
- MA.1.NSO.2.1/2.2
- MA.1.AR.1.2

Vertical Alignment

Previous Benchmarks	**Next Benchmarks**
• MA.K.AR.2.1	• MA.2.AR.2.2

Terms from the K-12 Glossary

- Expression
- Equation

Purpose and Instructional Strategies

The purpose of this benchmark is to get students thinking about the relationships between addition and subtraction. In Kindergarten, students explored equations and developed an understanding of the equal sign by explaining why addition and subtraction equations are true using objects and drawings.
- Instruction may present equations in different forms such as $a + b = c$ or $c = a + b$.
- Instruction may include students using a related addition fact or a part-part-whole mat to help them find the missing addend in a subtraction equation.
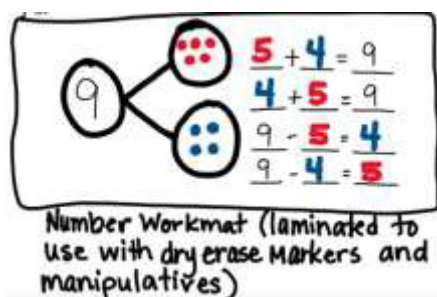

Common Misconceptions or Errors
- Students may not recognize how an addition problem can help them solve a subtraction problem. Guided practice with related facts may be helpful for students who do not recognize this.
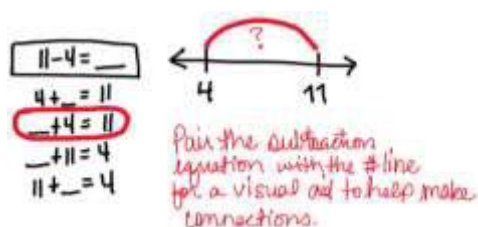
- Students may solve the equation and look for the solution in the answer choices rather than relying on reasoning.
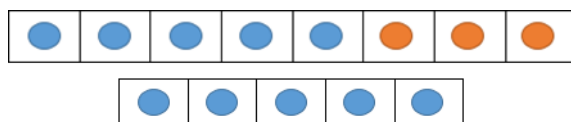

Strategies to Support Tiered Instruction:
- Teacher provides opportunities to use number bonds to develop an understanding of fact families and inverse relationships.
  - For example, students create a number bond for the number 9 using counters on a number bond work mat. Students then write the fact families for the number 9. Discussion should be focused on how the fact families are related and how knowing the addition facts can help the students solve a subtraction problem.

Number Workmat (laminated to use with dry erase Markers and manipulatives)

- Instruction provides opportunities to match a range of subtraction equations to their missing addend equation.
  - For example, the teacher provides a variety of equations which may include: 11 -4 = __ , 4 + __ = 11, __ + 4 = 11, __ + 11 = 4, and 11 + __ = 4. Students determine which missing addend equations will help them solve 11- 4 = __. The discussion should focus on reasoning about which equations will work and which will not.

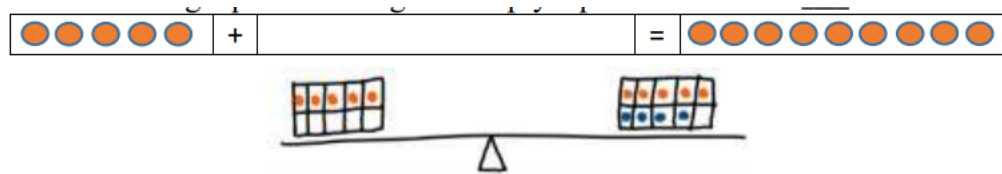Pair the subtraction equation with the # line for a visual aid to help make connections.

- Instruction provides opportunities to solve problems that highlight the relationship between addition and subtraction using a linear ten frame.
  - For example, students use two different colors to share the addend on the ten frame. Students write the addition fact that is represented on the ten frame 5 + 3= 8. They then subtract 3 from 8 by folding under the three "orange" blocks. Students are left with the 5 "blue" blocks, so 8 -3= 5. They should practice with multiple addition facts. Discussion should be focused on the relationship between addition and subtraction.

Teacher provides opportunities to work in reverse of the benchmark to solve missing addend equations and then write the subtraction equation that matches the missing addend equation.

- o For example, students use two-color counters to build the knowns of the following equation on a given empty equation mat 5 + ___ = 9.

Teacher asks "How many do you need to put in the empty space to equal the other side of the equation of you already have 5? Can we write a subtraction equation to help us solve this problem?"

Questions to ask students:

- **What strategy did you use to determine the unknown?**
  - o Sample answer that indicates understanding: *Student can explain how they solved the problem by adding/counting up to find the answer (think addition to subtract) or rewrite the subtraction equation as an addition sentence to make it easier to solve*

- **How can you use addition to help you solve the expression 11 - 7?**
  - o Sample answer that indicates understanding: *Student explains how they can use the "think addition" strategy to solve, 7 + ? = 11.*

Instructional Tasks
Instructional Task 1

Katina has 14 grapes. She gives 8 of them to her brother Kevin. What addition problem could help Katina figure out how many grapes she has left for herself?

Instructional Items
Instructional Item 1

Which addition equation can help you determine $10 - 3$?
  - a. $3 + 10 = 13$
  - b. $5 + 3 = 8$
  - c. $7 + 3 = 10$
  - d. $11 + 3 = 14$

Instructional Item 2

Complete the part-part-whole mat to help you determine $11 - 5$.

Part	Part
Whole	

Additional Resources:

CPALMS Resources

Teaching the Think Addition Strategy for Subtraction

Resources/Tasks to Support Your Child at Home:
Play a game using half of a plastic egg and some sort of small objects like beans. Put some beans on the table and have your child count them. Then hide some of the beans under the egg. Have him/her write an addition and a subtraction problem to match what happened.

Think Addition Game Using Bar Models

Rewrite addition equations as related subtraction equations.

Rewrite addition equations as subtraction equations with a missing addend: What goes with this part to make the total?

Use Think Addition to Subtract