MA.2.NSO.2.4

Overarching Standard: ***MA.2.NSO.2*** *Add and subtract two- and three-digit whole numbers.*

Benchmark of Focus

MA.2.NSO.2.4: Explore the addition of two whole numbers with sums up to 1,000. Explore the subtraction of a whole number from a whole number, each no larger than 1,000.

> *Example:* The difference 612 − 17 can be found by rewriting it as 612 − 12 − 5 which is equivalent to 600 − 5 which is equivalent to 595.
>
> *Example:* The difference 1,000 − 17 can be found by using a number line and making a "jump" of 10 from 1,000 to 990 and then 7 "jumps" of 1 to 983.

Benchmark Clarifications

Clarification 1: Instruction includes the use of manipulatives, number lines, drawings or properties of operations or place value

Clarification 2: Instruction focuses on composing and decomposing ones, tens and hundreds when needed.

Related Benchmark/Horizontal Alignment

- MA.NSO.1.2/1.3

Vertical Alignment

Previous Benchmarks	**Next Benchmarks**
MA.1.NSO.2.4	MA.3.NSO.2.1
MA.1.NSO.2.5	

Terms from the K-12 Glossary

- Equation
- Expression

Purpose and Instructional Strategies

The purpose of this benchmark is to extend the exploration of addition and subtraction of two whole numbers work from grade 1 to include a number set through 1,000.

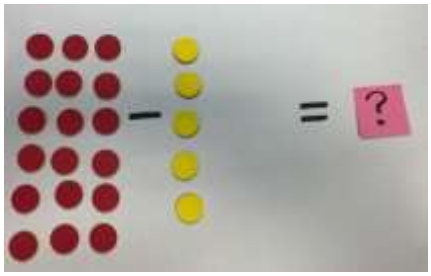
- Instruction includes the use of two- or three-digit numbers to add and subtract.
- Instruction includes the use of the commutative property of addition.
- It is not the expectation for students to use a standard algorithm. Instruction focuses on strategies supported by manipulatives, number lines, base ten blocks, place value and drawings.
- Instruction includes helping students understand that when adding it is sometimes necessary to combine ones or tens and compose a new ten or new hundred.
- Instruction includes helping students understand that when subtracting it is sometimes necessary to decompose tens or hundreds and regroup ones or tens.

Common Misconceptions or Errors

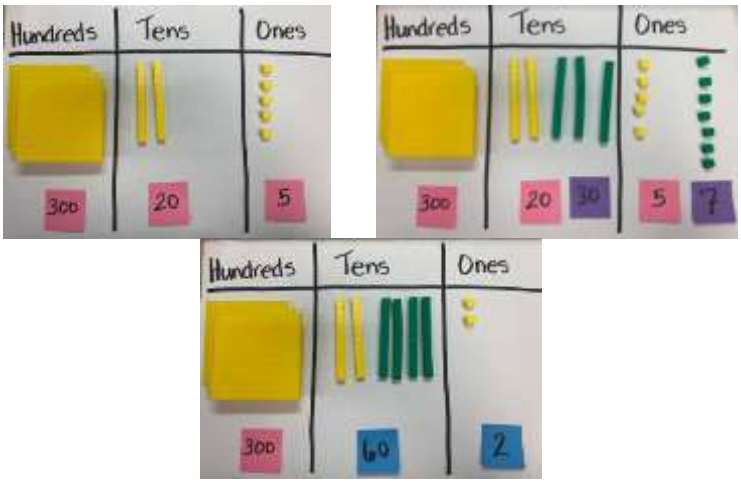
- Students may try to apply properties of addition, such as the commutative property, to solve subtraction problems.
- Students may regroup but also include an additional, unnecessary ten or hundred.
- Students may incorrectly add or subtract because they have lost track of the value of digits.

Strategies to Support Tiered Instruction

- Instruction includes examples of the commutative property of addition, and how it does
- not apply to the related facts for subtraction.
    - For example, using two color counters have students represent the expression 13 + 5. Teacher asks, "What is the sum?" Then asks, "What are the related facts?" If students can identify the addition, but not the subtraction problems correctly, the teacher has students start with the total number of counters, 18. "18 – 5 is what?" Students should respond with 13. Then the teacher asks, "What is another related fact?" If they try to do 5 – 18, have them start with 5 and take away 18. They will not be able to show the related fact with the numbers 18, 13 and 5. They will end up with negative numbers.



- Instruction includes the use of base ten blocks. Students may regroup ones and tens unnecessarily. Once students understand how to regroup you may find that they attempt to regroup when it is not needed. Using base ten blocks provide examples of expression with and without regrouping. When students are solving an addition problem and they have more than 10 ones or tens remind them that this is when they are to exchange for the next place. When subtracting remind the student that regrouping is only necessary when there is not enough base ten blocks to take away from the place value.



- Instruction includes the use of a place value chart to clarify understanding of the value of the digit to add or subtract. Using the chart will ensure the digit and its value is correct.
    - For example, using the place value chart and base-ten blocks, students place the number 325 into the chart using the base-ten blocks. Then, the teacher asks students to add or subtract 37 by either adding 37 or subtracting 37 base-ten blocks ensuring that students align the digits of the number in the correct place value.

Questions to ask students:

- **What strategies could you use to solve 326 – 289?**
    - Sample answer that indicates understanding: *I could use base ten blocks, draw a quick pic, break apart the numbers (expanded form), or use a number line.*
    - **Have the student select a strategy and solve the problem. Have them explain their thinking as they work through the problem.**
        - Sample answer that indicates understanding: *I can start my number line at 326 then jump back to 289 to find the difference. I can jump back 6 to 320, then back 20 to 300, then back 10 to 290, and back 1 more to 289. I count up how much I jumped back and add it all together. 6 + 20 + 10 + 1 = 37, so the difference is 37.*

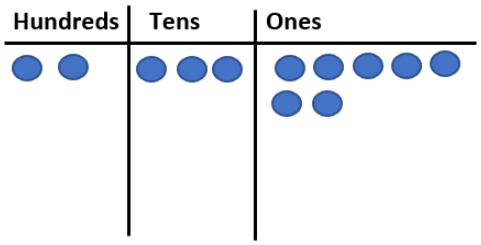
- **How can you decompose or break apart numbers to solve 502 + 316?**
    - Sample answer that indicates understanding: *I can break apart each number by place value then add each place value together. So, 502 is the same as 500 + 2 and 316 is the same as 300 + 10 + 6. I can add the ones 6 + 2 = 8 ones = 8, then there is only 1 ten = 10, then add the hundreds 500 + 300 = 8 hundreds = 800. So the sum is 800 + 10 + 8 or 818.*

- **How do you know when you need to regroup?**
    - Sample answer that indicates understanding when **adding**: *If the tens add up to a hundred or more then I have to regroup them for a hundred and some tens. For example, when adding 8 and 6 tens it is more than 9, the greatest digit that can go in the tens place, so the amount will form another hundred to be recorded in the hundreds place and some tens that will be represented in the tens place.*
    - Sample answer that indicates understanding when **subtracting**: *If there aren't enough tens to subtract from, then I have to regroup hundreds to tens so that I can subtract. For example, I can't take away 5 tens from 2 tens, so I regroup the hundred into 10 tens and put it together with the 2 tens I had for a total of 12 tens. Now, when I subtract 5 tens from 12 tens it equals 7 tens.*

Instructional Tasks

Instructional Task 1

A student represented the number 237, using counters, as a place value model as shown below. Use the model below to find the value of 237 − 185.



Instructional Task 2

Part A. Allow student to use various methods to find the sum of 581 and 72. Students may choose to count by 10s and 1s, use a number line, base ten blocks or use a standard algorithm.

Part B. Have a discussion about the different methods students decided to use.

Instructional Items
Instructional Item 1

Find the value of the expression 454 + 219.

Additional Resources:

CPALMS Resources

Blog Post: Progression of Addition and Subtraction

Video: Add 3-Digit Numbers on Open Number Lines

Resources/Tasks to Support Your Child at Home

Kahn Academy Video: Adding 3-Digit Numbers (no regrouping)

Kahn Academy Video: Adding & Subtracting on Number Line

Create 3-digit addition and subtraction equations (make sur the sum or difference is within 1.000) for your child to solve using virtual base ten blocks or an open number line. Ask them to use math vocabulary to explain each step. *Your child can roll 3 dice to create the various 3-digit numbers.