

## MA.4.NSO.2.7

**Overarching Standard:** *MA.4.NSO.2 Build an understanding of operations with multi-digit numbers including decimals.*

### Benchmark of Focus

MA.4.NSO.2.7: Explore the addition and subtraction of multi-digit numbers with decimals to the hundredths.

### Benchmark Clarifications

*Clarification 1:* Instruction includes the connection to money and the use of manipulatives and models based on place value.

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### Related Benchmark/Horizontal Alignment

- MA.4.NSO.1.5
  - MA.4.FR.1.1/1.2
  - MA.4.FR.2.3
  - MA.4.M.2.2
  - MA.4.DP.1.3
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### Vertical Alignment

#### Previous Benchmarks

MA.2.NSO.2.2

#### Next Benchmarks

MA.5.NSO.2.3

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### Terms from the K-12 Glossary

- equation
  - expression
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### Purpose and Instructional Strategies

The purpose of this benchmark is for students to explore addition and subtraction of decimals to the hundredths using manipulatives, visual models, discussions, estimation, and drawing.

- Instruction should focus on strategies based on place value. Through the connection to money students can build on previous content knowledge about money to adding and subtracting decimals based on place value. Examples of manipulatives that support understanding when adding and subtracting decimals are base-ten blocks, place value chips, money (dollars and coins) and place value mats.
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### Common Misconceptions or Errors

- A common error that students make is to not add or subtract like place values, especially in an example such as  $30.1 + 2.74$ . Instruction should relate decimals to methods used for whole numbers. When adding whole numbers, ones were added to ones, tens to tens, hundreds to hundreds, and so forth. When adding decimal numbers, like place values are combined, too. Like place values are subtracted, just as with whole numbers.
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## Strategies to Support Tiered Instruction

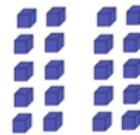
- Instruction includes relating decimals to methods used for whole numbers. When adding whole numbers, ones were added to ones, tens to tens, hundreds to hundreds, and so forth. When adding decimal numbers, like place values are combined, too. Like place values are subtracted, just as with whole numbers. The teacher utilizes place value charts so that students can see where to line up values for the computation.
  - For example,  $20.2 - 9.75$  is going to require some regrouping. By placing the problem in a place value chart, students line up the decimal and subtract like place values.

tens	ones	tenths	hundredths
2	0	2	
	9	7	5

- Instruction includes relating decimal place values. Working with base ten blocks, students build decimals and their equivalents.
  - For example, building 0.2 “two-tenths” and 0.20 “twenty hundredths” with base ten blocks will help students to realize that the numbers have the same value.



0.2



0.20

### Questions to ask students:

Look at the following expression:  $12.25 + 3.05 + 0.6$ . What is the value of the expression? Use a model to prove your answer.

Sample answer that indicates understanding: *I can use a large cube to represent tens, flat for ones, rods for tenths and unit cubes for hundredths. The sum is 15.90.*

Sample answer that indicates an incomplete understanding or misconception: student cannot represent using model or adds without using proper place value representation.

### Instructional Tasks

#### Instructional Task 1

Tony’s lunchbox weighs 2.5 pounds. He took out his apple that weighs 0.65 pounds. How much does his lunchbox weigh now?

### Instructional Items

#### Instructional Item 1

Match each expression on the left with the equivalent decimal.

	13.19	12.88	13.44	13.91
$7.65 + 5.23$	A	B	C	D
$15.74 - 2.3$	E	F	G	H
$6.16 + 7.03$	I	J	K	L
$23.11 - 9.2$	M	N	O	P

**Achievement Level Descriptors:**

Benchmark		Context	Assessment Limits
MA.4.M.2.2 Solve one- and two-step addition and subtraction real-world problems involving money using decimal notation. Example: An item costs \$1.84. If you give the cashier \$2.00, how much change should you receive? What coins could be used to give the change? Example: At the grocery store you spend \$14.56. If you do not want any pennies in change, how much money could you give the cashier? <b>Also Assesses</b> MA.4.NSO.2.7 Explore the addition and subtraction of multi-digit numbers with decimals to the hundredths.		Real-world for MA.4.M.2.2 Mathematical for MA.4.NSO.2.7	Items assessing MA.4.M.2.2 are limited to values that are less than or equal to \$100.
ALD 2	ALD 3	ALD 4	ALD 5
solves one-step addition problems involving money using decimal notation.	solves one-step addition and subtraction real-world problems involving money using decimal notation.	solves one- and two-step addition and subtraction real-world problems involving money using decimal notation. explores the addition and subtraction of multi-digit numbers with decimals to the hundredths.	identifies an error and solves two-step addition and subtraction real-world problems involving money using decimal notation. adds and subtracts multi-digit numbers with decimals to the hundredths.

**Additional Resources:**

[CPALMS Resources](#)

[Khan Academy Adding Decimals \(tenths\)](#)

[Khan Academy Adding Decimals \(hundredths\)](#)

[Khan Academy subtracting Decimals](#)

**Resources/Tasks to Support Your Child at Home:**

Record 2 or 3 prices of items from the grocery store (use the receipt, or price tags on items). Have your child find the sum of the three products.

Record 2 or 3 prices of items from the grocery store (use the receipt, or price tags on items). Have your child find the difference between each items?