MA.5.NSO.1.2

Overarching Standard: *MA.5.NSO.1 Understand the place value of multi-digit numbers with decimals to the thousandths place.*

Benchmark of Focus

MA.5.NSO.1.2: Read and write multi-digit numbers with decimals to the thousandths using standard form, word form and expanded form.

Example: The number sixty-seven and three hundredths written in standard form is 67.03 and in expanded form is 60 + 7 + 0.03 or (6 × 10) + (7 × 1) + (3 × 1/100).

Related Benchmark/Horizontal Alignment
- MA.5.NSO2.4/2.5
- MA.5.AR.2.1/2.2/2.3
- MA.5.M.2.1

Vertical Alignment

Previous Benchmarks
- MA.4.NSO.1.2

Next Benchmarks
- MA.6.AR.1.1

Purpose and Instructional Strategies

The purpose of this benchmark is for students to read numbers appropriately and to write numbers in all forms. Utilizing place value, students are expected to understand the value of tenths, hundredths, and thousandths, extending from their work to read and write whole numbers in any form in Grade 4 (MA.4.NSO.1.2). Writing numbers in expanded form can help students see the relationship between decimals and fractions. (MTR.5.1). Translating from written form to symbolic form builds the foundation for moving from written to algebraic form in Grade 6 (MA.6.AR.1.1).

- Representing numbers in flexible ways will help students name, order, compare and operate with decimals. (MTR.3.1)

- During instruction, teachers should relate all three forms using place value charts and base ten manipulatives (e.g., blocks). (MTR.3.1, MTR.4.1, MTR.5.1)

Common Misconceptions or Errors
- Students may incorrectly read and write from expanded form if one of the digits is 0, like in the number 67.03 as used in the benchmark example. A common mistake that students make is to name the number as 67.3 because they do not see that 3 is the value of hundredths.

Questions to ask students:

Write the numeral 134.278 in expanded form.

- Sample answer that indicates understanding: $100 + 30 + 4 + 2 \times \frac{1}{10} + 7 \times \frac{1}{100} + 8 \times \frac{1}{1000}$
- Sample answer that indicates an incomplete understanding or a misconception: $100 + 30 + 4 + 2 + 7 + 8$ *or* $100 + 30 + 4 + 200 + 70 + 8$

Read aloud the numeral 134.278

- Sample answer that indicates understanding: *One hundred thirty-four and two hundred seventy-eight thousandths*
- Sample answer that indicates an incomplete understanding or a misconception: *One hundred and thirty-four point two seventy-eight*

Instructional Tasks

Instructional Task 1

Use the number cards below to write a number in standard, word and expanded forms. You can use the cards in any order to make your number, but it must have a digit other than zero in the thousandths place

| 8 | 0 | 3 | . |

| 6 | 5 |
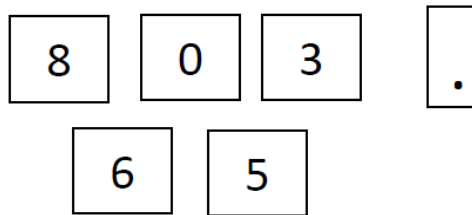
Instructional Items

Instructional Item 1

Which shows the number below in word form?

$$(7 \times 100) + (2 \times 1) + \left(5 \times \frac{1}{10}\right) + \left(9 \times \frac{1}{1000}\right)$$

a. *Seventy $-$ two and fifty $-$ nine thousandths*
b. *Seven hundred two and fifty $-$ nine hundredths*
c. *Seven hundred two and five hundred nine thousandths*
d. *Seventy $-$ two and five hundred nine thousandths*

Instructional Item 2

Write *eight thousand and two hundredths* in standard form.

Achievement Level Descriptors:

Benchmark	Context	Assessment Limits
MA.5.NSO.1.2 Read and write multi-digit numbers with decimals to the thousandths using standard form, word form and expanded form.	Mathematical	Items that require the use of standard form for numbers including decimal

Example: The number sixty-seven and three hundredths written in standard form is 67.03 and in expanded form is 60 + 7 + 0.03 or (6 × 10) + (7 × 1) + (3 × $\frac{1}{100}$).			notation will use the language "standard decimal form." Numbers will have a maximum of six significant digits.
ALD 2	**ALD 3**	**ALD 4**	**ALD 5**
reads and writes multi-digit numbers with decimals to the tenths using standard form, word form, and expanded form.	reads and writes multi-digit numbers with decimals to the hundredths using standard form, word form, and expanded form.	reads and writes multi-digit numbers with decimals to the thousandths using standard form, word form, and expanded form.	reads and writes multi-digit numbers with decimals to the thousandths using standard form, word form, and expanded form interchangeably and in multiple forms.

Additional Resources:

CPALMS Resources

Learnzillion Video: Write Numbers in Decimal Form

Khan Academy: Decimals in Expanded Form

Resources/Tasks to Support Your Child at Home:

Some interesting fossils have been found. For example, geologists found a cockroach that measured 3.453 inches long! What is the number 3.453 written in expanded form?

While walking around the grocery store or in your house, ask your child to read different items ounces or liters (Ex: a shampoo bottle may be 6.07 oz, it would read as : "six and 7 hundredth ounces". Ask your child to write a certain decimal in expanded form, written form, and decimal form. For example:

Decimal: 4.135

Written: Four and one hundred thirty-five thousandths

Expanded form: 4 × 1 + 1 × (1/10) + 3 × (1/100) + 5 × (1/1000)

Florida Student Tutorial: Cracking the Decimal Code