

MA.5.NSO.1.5

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.1.5: Round multi-digit numbers with decimals to the thousandths to the nearest hundredth, tenth or whole number.

Example: The number 18.507 rounded to the nearest tenth is 18.5 and to the nearest hundredth is 18.51.

Related Benchmark/Horizontal Alignment

- MA.5.NSO.2.3/2.4
- MA.5.AR.2.1/2.2/2.3

Vertical Alignment

Previous Benchmarks	Next Benchmarks
<ul style="list-style-type: none">• MA.4.NSO.1.4	<ul style="list-style-type: none">• MA.6.NSO.2.3• MA.8.NSO.1.4

Purpose and Instructional Strategies

The purpose of this benchmark is for students to think about the magnitude of multi-digit numbers with decimals to round them to the nearest hundredth, tenth or whole number. In Grade 5, the expectations for rounding are to the nearest hundredth and to digits other than the leading digit, e.g., round 29.834 to the nearest hundredth. Students have experience rounding whole numbers to any place in Grade 4 (MA.4.NSO.1.4). Rounding skills continue to be important in later grades as students solve real-world problems with fractions and decimals (MA.6.NSO.2.3) and work with scientific notation (MA.8.NSO.1.4).

- Instruction should develop some efficient rules for rounding fluently by building from the basic strategy of - "Is 29.834 closer to 20 or 30?" Number lines are effective tools for this type of thinking and help students relate the placement of numbers to benchmarks for rounding. (MTR.3.1, MTR.5.1)
- The expectation is that students have a deep understanding of place value and number sense in order to develop and use an algorithm or procedure for rounding. Additionally, students should explain and reason about their answers when they round and have numerous experiences using a number line and a hundred chart as tools to support their work with rounding.

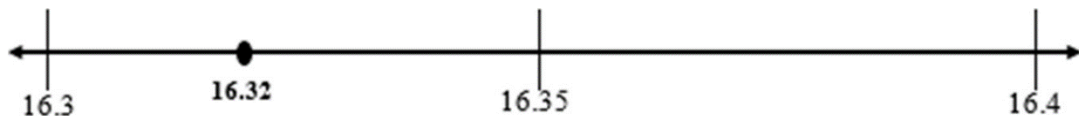
Common Misconceptions or Errors

- Students may confuse benchmarks by which numbers can round. For example, when rounding 29.834 to the nearest tenth, they may confuse that the benchmarks are 29.8

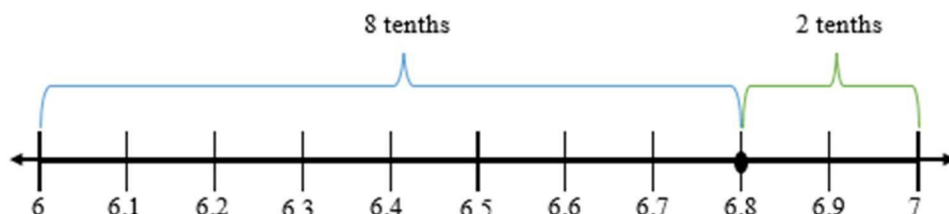
and 29.9. The reliance on mnemonics, songs or rhymes during instruction can often confuse students further because it may replace their motivation to think about the benchmark numbers

Strategies to Support Tiered Instruction:

- The expectation is that students have a deep understanding of place value and number. Instruction includes using number lines and place value understanding to round multi-digit numbers with decimals to the nearest tenth or whole number.
 - For example, students round 16.32 to the nearest tenth using a number line and place value understanding. The teacher explains that the endpoints of the number line will be represented using tenths, because we are rounding to the nearest tenth. The teacher explains that there are three tenths in the number 16.32 and one more tenth would be four tenths. The teacher represents these endpoints on the number line as sixteen and three-tenths (16.3) and sixteen and four-tenths (16.4) while reminding students that 16.3 is equivalent to 16.30 and 16.4 is equivalent to 16.40. Additionally, the teacher explains that the mid-point on the number line can be labeled as sixteen and three-tenths, five-hundredths or sixteen and 35 hundredths (16.35). This midpoint is halfway between 16.3 and 16.4. The teacher asks students to plot 16.32 on the number line and discuss if it is closer to 16.3 or 16.4, explaining that 16.32 rounds to 16.3 because it is less than the midpoint of 16.35 and closer to 16.3 on the number line.



- For example, students round 6.8 to the nearest whole number using a number line and place value understanding. The teacher explains that the endpoints of our number line will be represented using ones, because we are rounding to the nearest whole number. Also, the teacher explains that there are six ones in the number 6.8 and one more one would be seven ones. The teacher represents these endpoints on the number line as six ones (6) and seven ones (7). The midpoint on the number line is labeled as 6 ones and 5 tenths (6.5). This midpoint is halfway between 6 and 7. The teacher asks students to plot 6.8 on the number line and discuss if it is closer to six or seven, explaining that 6.8 rounds to seven because it is eight-tenths away from six and only two-tenths away from seven. It is also less than the midpoint of 6.5.



Questions to ask students:

Ray finished a race in 13.48 minutes. What was Ray's finishing time to the nearest tenth?

- Sample answer that indicates understanding: *In the decimal number 13.48, there are 13 ones (or minutes), 4 tenths, and 8 hundredths. 48 hundredths plots between 13.4 and 13.5 on the number line and it is closer to 13.5 so 13.48 will round to 13.5.*
- Sample answer that indicates an incomplete understanding or a misconception: *48 rounds up because 8 is five or more so it rounds to 13.58.*

List 4 numbers that round to 2.6 when rounded to the nearest tenth.

- Sample answer that indicates understanding: *2.59, 2.62, 2.64, 2.56*
- Sample answer that indicates an incomplete understanding or a misconception: *2.6 rounds to 3. (Misconception that all numbers round to a whole number)*

Instructional Tasks*Instructional Task 1*

Round 29.834 to the nearest whole number. Identify between which two whole numbers 29.834 lies on a number line.

Instructional Task 2

Round 29.834 to the nearest tenth. Identify between which two tenths 29.834 lies on a number line.

Instructional Task 3

Round 29.834 to the nearest hundredth. Identify between which two hundredths 29.834 lies on a number line.

Instructional Items*Instructional Item 1*

Which of the following are true about the number 104.029?

- 104.029 rounded to the nearest whole number is 4.
- 104.029 rounded to the nearest whole number is 104.
- 104.029 rounded to the nearest tenth is 104.2.
- 104.029 rounded to the nearest hundredth is 104.02.
- 104.029 rounded to the nearest hundredth is 104.03.

Achievement Level Descriptors

Benchmark	Context	Assessment Limits
MA.5.NSO.1.5 Round multi-digit numbers with decimals to the thousandths to the nearest hundredth, tenth or whole number.	Mathematical	N/A

Example: The number 18.507 rounded to the nearest tenth is 18.5 and to the nearest hundredth is 18.51.			
ALD 2	ALD 3	ALD 4	ALD 5
rounds multi-digit numbers with decimals to the tenths to the whole number.	rounds multi-digit numbers with decimals to the hundredths to the nearest tenth or whole number.	rounds multi-digit numbers with decimals to the thousandths to the nearest hundredth, tenth, or whole number.	identifies an error and generates possible numbers given their rounded value.

Additional Resources:

[CPALMS](#)

[Khan Academy: Rounding Decimals to the Nearest Tenth](#)

Resources/Tasks to Support Your Child at Home:

[Rounding Decimals Game](#)