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| **Prerequisite Skills**  **(Grade 4)** | **Unit Four Standards**  **Grade 5** | **Looking Ahead**  **(Grade 6)** |
| Recognize that in a multi-digit number, a digit in one place represents ten times what it represents in the place to its right. | Number and Operations Base Ten 1: Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.   * I can recognize that in a multi-digit number, a digit in one place represents 1/10 of the place value to its left. * I can recognize that in a multi-digit number, a digit in one place represents 10 times the place value to its right. | Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. |
| Number and Operations Base Ten 2: Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.   * I can represent powers of 10 using whole number exponents (103 = 10x10x10 = 1000) * I can explain patterns when multiplying a number by powers of 10. * I can explain the relationship in the placement of the decimal point when a decimal is multiplied or divided by powers of 10. |
| Read, and write multi-digit whole numbers using base-ten numerals.  Compare multi-digit whole numbers using base-ten numerals.  Use decimal notation for a fraction using denominator 10 or 100. | Number and Operations Base Ten 3a: Read, write, and compare decimals to thousandths.  a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000)   * I can read and write decimals to thousandths using base ten numerals, number names, and expanded form.   b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.   * I can compare two decimals to the thousandths based on the place value of each digit. | Write an inequality to represent a constraint or real world problem.  Know that inequalities written as x < c or x > c have infinite solutions.  Show inequalities on a number line. |
| Round multi-digit whole numbers to any place. | Number and Operations Base Ten 4: Use place value understanding to round decimals to any place.   * I can use my understanding of place value to round decimals. | Students need to have a firm grasp of place value for future work with computing with numbers, exponents and scientific notation. |
| Fluently add and subtract multi-digit whole numbers using a standard algorithm.  Multiply and divide whole numbers using arrays, area models, or inverse relationships. | Number and Operations Base Ten 7: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.   * I can add, subtract, multiply, and divide decimals to hundredths. * I can explain the reasoning used to solve decimal problems. |
| Know relative size of units including (km, m, cm, kg, g, lb, oz, l, ml, hr, min, sec)  Word problems with all operations that involve: distance, time, volume, ,mass, money – including simple fractions and decimals. | Measurement and Data 1: Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.   * I can convert units of measurement within the same measurement system. * I can solve multi-step, real world problems that involve converting measurement units. | Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Number and Operations Base Ten 1:  Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. | * I can recognize that in a multi-digit number, a digit in one place represents 1/10 of the place value to its left. * I can recognize that in a multi-digit number, a digit in one place represents 10 times the place value to its right. |  |  |  | | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | This standard calls for students to work with the idea that the tens place is ten times as much as the ones place, and the ones place is 1/10th the size of the tens place.  In fourth grade, students examined the relationships of the digits in numbers for whole numbers only. This standard extends this understanding to the relationship of decimal fractions. They use their understanding of unit fractions to compare decimal places and fractional language to describe those comparisons.  Before considering the relationship of decimal fractions, students express their understanding that in multi-digit whole numbers, a digit in one place represents 10 times what it represents in the place to its right and 1/10 of what it represents in the place to its left.  Money is a good medium to compare decimals. Present contextual situations that require the comparison of the cost of two items to determine the lower or higher priced item. Students should also be able to identify how many pennies, dimes, dollars and ten dollars, etc., are in a given value. Help students make connections between the number of each type of coin and the value of each coin, and the expanded form of the number. Build on the understanding that it always takes ten of the number to the right to make the number to the left. | | | **Examples:** | | | The 2 in the number 542 is different from the value of the 2 in 324. The 2 in 542 represents 2 ones or 2, while the 2 in 324 represents 2 tens or 20. Since the 2 in 324 is one place to the left of the 2 in 542 the value of the 2 is 10 times greater.  Meanwhile, the 4 in 542 represents 4 tens or 40 and the 4 in 324 represents 4 ones or 4. Since the 4 in 324 is one place to the right of the 4 in 542 the value of the 4 in the number 324 is 1/10th of its value in the number 542. | In the number 55.55, each digit is 5, but the value of the digits is different because of the placement.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **5** | **5** | **.** | **5** | **5** |   The 5 that is in the gray box is 1/10 of the 5 to left and 10 times to the 5 to the right. The 5 in the ones place is 1/10 of 50 and 10 times five tenths. |  |  |  |  | | --- | --- | --- | | **Lessons and Resources for Number and Operations Base Ten 1** | | | | [Bank of Problems](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%203/CGI%205th%20Grade%20Fractions%20Story%20Bank.docx) | Unit 6 Inv 1.1, 1.2, 1.5A, 2.5A | Unit 3 Inv 1 (1.1 – 1.5) |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [2. Reason abstractly and quantitatively.](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively3.html) | [6. Attend to precision.](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Number and Operations Base Ten 2:  Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. | * I can represent powers of 10 using whole number exponents (103 = 10x10x10 = 1000) * I can explain patterns when multiplying a number by powers of 10. * I can explain the relationship in the placement of the decimal point when a decimal is multiplied or divided by powers of 10. |  |  |  | | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | New at Grade 5 is the use of whole number exponents to denote powers of 10. Students understand why multiplying by a power of 10 shifts the digits of a whole number or decimal that many places to the left.  This standard includes multiplying by multiples of 10 and powers of 10, including 102 which is 10 x 10=100, and 103 which is 10 x 10 x 10=1,000. Students should have experiences working with connecting the pattern of the number of zeros in the product when you multiply by powers of 10.  **Students need to be provided with opportunities to explore this concept and come to this understanding; this should not just be taught procedurally.** | | | **Examples:** | | | **2.5 x 103 = 2.5 x (10 x 10 x 10) = 2.5 x 1,000 = 2,500**  Students should reason that the indicates how many places the decimal point is moving (not just that the decimal point is moving but that you are multiplying or making the number 10 times greater three times) when you multiply by a power of 10. Since we are multiplying by a power of 10 the decimal point moves to the right. exponent above the 10  **Students should be able to use the same type of reasoning as above to explain why the following multiplication and division problem by powers of 10 make sense.**  • 523 x 103 = 523,000 The place value of 523 is increased by 3 places.  • 5.223 x 102 = 522.3 The place value of 5.223 is increased by 2 places.  • 52.3 ÷ 101 = 5.23 The place value of 52.3 is decreased by one place. | **Students might write:**  • 36 x 10 = 36 x 101 = 360  • 36 x 10 x 10 = 36 x 102 = 3600  • 36 x 10 x 10 x 10 = 36 x 103 = 36,000    **Students might think and/or say:**   * I noticed that every time, I multiplied by 10 I added a zero to the end of the number. That makes sense because each digit’s value became 10 times larger. To make a digit 10 times larger, I have to move it one place value to the left. * When I multiplied 36 by 10, the 30 became 300. The 6 became 60 or the 36 became 360. So I had to add a zero at the end to have the 3 represent 3 one-hundreds (instead of 3 tens) and the 6 represents 6 tens (instead of 6 ones). |  |  |  |  |  | | --- | --- | --- | --- | | **Lessons and Resources for Number and Operations Base Ten 2** | | | | | [Bank of Problems](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%203/CGI%205th%20Grade%20Fractions%20Story%20Bank.docx) | Unit 6 Inv 3A.1, 3A.5 | [Powers of 10 Lesson](http://www.eduplace.com/math/mw/background/6/01/te_6_01_decimals_ideas1.html) | [Power of 10 Yahtzee](https://docs.google.com/a/bryantschools.org/document/d/1IjYOmNPJSKMM2aCFjDXm9llNaBUPuP7GLSciUuE0TI0/edit?pli=1) |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [2. Reason abstractly and quantitatively.](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively3.html) | [6. Attend to precision.](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Number and Operations Base Ten 3a:  Read, write, and compare decimals to thousandths.  a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000) | * I can read and write decimals to thousandths using base ten numerals, number names, and expanded form. | | Number and Operations Base Ten 3b:  b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. | * I can compare two decimals to the thousandths based on the place value of each digit. |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | | | | | This standard references expanded form of decimals with fractions included. Students should build on their work from Fourth Grade, where they worked with both decimals and fractions interchangeably. Expanded form is included to build upon work in NBT.2 and deepen students’ understanding of place value.  Students build on the understanding they developed in fourth grade to read, write, and compare decimals to thousandths. They connect their prior experiences with using decimal notation for fractions and addition of fractions with denominators of 10 and 100.  They use concrete models and number lines to extend this understanding to decimals to the thousandths. Models may include base ten blocks, place value charts, grids, pictures, drawings, manipulatives, technology-based, etc.  They read decimals using fractional language and write decimals in fractional form, as well as in expanded notation. This investigation leads them to understanding equivalence of decimals (0.8 = 0.80 = 0.800).  3b. refers to comparing decimals builds on work from fourth grade. | | | | | | | **Example**: Equivalent forms of 0.72 are: | | | | | | | 72/100 | 7/10 + 2/100 | 0.70 + 0.02 | 70/100 + 2/100 | 0.720 | 720/1000 |  |  |  |  | | --- | --- | --- | | **Lessons and Resources for Number and Operations Base Ten 3a + 3b** | | | | [Bank of Problems](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%203/CGI%205th%20Grade%20Fractions%20Story%20Bank.docx) | Unit 6 Inv 1,2,3 | [Friendly Fractions to Decimals](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Friendly%20Fractions%20to%20Decimals.doc) | | [Base-Ten Fractions to Decimals](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Base-Ten%20Fractions%20to%20Decimals.doc) | [Line ‘Em Up](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Line%20Em%20Up.doc) |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | | [2. Reason abstractly and quantitatively.](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively3.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics.html) | [5. Use appropriate tools strategically.](http://elementarymath.dmschools.org/5-use-appropriate-tools-strategically5.html) | [6. Attend to precision.](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Number and Operations Base Ten 4:  Use place value understanding to round decimals to any place. | * I can use my understanding of place value to round decimals. |  |  |  | | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | This standard refers to rounding. Students should go beyond simply applying an algorithm or procedure for rounding. The expectation is that students have a deep understanding of place value and number sense and can explain and reason about the answers they get when they round. Students should have numerous experiences using a number line to support their work with rounding.  Students should use benchmark numbers to support this work. Benchmarks are convenient numbers for comparing and rounding numbers. 0., 0.5, 1, 1.5 are examples of benchmark numbers. | | | **Examples:** | | | **Round 14.235 to the nearest tenth.**  Students recognize that the possible answer must be in tenths thus, it is either 14.2 or 14.3. They then identify that 14.235 is closer to 14.2 (14.20) than to 14.3 (14.30). | **Which benchmark number is the best estimate of the shaded amount in the model below? Explain your thinking.** |  |  |  |  | | --- | --- | --- | | **Lessons and Resources for Number and Operations Base Ten 4** | | | | [Bank of Problems](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%203/CGI%205th%20Grade%20Fractions%20Story%20Bank.docx) | Unit 6 Inv 3A | [Estimate Then Verify](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Estimate%20Then%20Verify.doc) | | [Decimals on a Friendly Fraction Line](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Decimals%20on%20a%20Friendly%20Fraction%20Line.doc) | [Best Match](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Best%20Match.doc) | [Close to a Friendly Fraction Line](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Close%20to%20a%20Friendly%20Fraction.doc) | | [Rounding Decimals](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Rounding%20Decimals%20Number%20Line.doc) | [Exact Sums and Differences](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Exact%20Sums%20and%20Differences.docx) | [Background reading for teachers:](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/The%20Role%20of%20Estimation.docx)  [The Role of Estimation](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/The%20Role%20of%20Estimation.docx)  [Addition and Subtraction](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/The%20Role%20of%20Estimation.docx) |      |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [2. Reason abstractly and quantitatively.](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively3.html) | [6. Attend to precision.](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Number and Operations Base Ten 7:  Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. | * I can add, subtract, multiply, and divide decimals to hundredths. * I can explain the reasoning used to solve decimal problems. |  |  |  |  |  | | --- | --- | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | | | In fifth grade, students begin adding, subtracting, multiplying and dividing decimals. **This work should focus on concrete models and pictorial representations, rather than relying solely on the algorithm.** This standard includes students’ reasoning and explanations of how they use models, pictures, and strategies. Before students are asked to give exact answers, they should estimate answers based on their understanding of operations and the value of the numbers.  Students should be able to express that when they add decimals they add tenths to tenths and hundredths to hundredths. So, when they are adding in a vertical format (numbers beneath each other), it is important that they write numbers with the same place value beneath each other. This understanding can be reinforced by connecting addition of decimals to their understanding of addition of fractions. Adding fractions with denominators of 10 and 100 is a standard in fourth grade. | | | | | **Examples of Multiplication** | | | | | **3.6 + 1.7**  A student might estimate the sum to be larger than 5 because 3.6 is more than 3 ½ and 1.7 is more than 1 ½. | **6 x 2.4**  A student might estimate an answer between 12 and 18 since 6 x 2 is 12 and 6 x 3 is 18. Another student might give an estimate of a little less than 15 because he figures the answer to be very close, but smaller than 6 x 2 ½ and think of 2 ½ groups of 6 as 12 (2 groups of 6) + 3 (½ of a group of 6). | **4 – 0.3**  3 tenths subtracted from 4 wholes. The wholes must be divided into tenths.    The answer is 3 and 7/10 or 3.7. | **An area model can be used for illustrating products.** | | **Examples of Division** | | | | | **Finding the number in each group or share**  Students should be encouraged to apply a fair sharing model separating decimal values  into equal parts such as: | **Find the number of groups**  Joe has 1.6 meters of rope. He has to cut pieces of rope that are 0.2 meters long. How many can he cut? | **Find the number of groups**  Joe has 1.6 meters of rope. He has to cut pieces of rope that are 0.2 meters long. How many can he cut? | **Find the number of groups**  Count groups of 2 tenths without the use of models or diagrams. Knowing that 1 can be thought of as 10/10, a student might think of 1.6 as 16 tenths. Counting 2 tenths, 4 tenths, 6 tenths, . . .16 tenths, a student can count 8 groups of 2 tenths |  |  |  |  |  | | --- | --- | --- | --- | | **Lessons and Resources for Number and Operations Base Ten 7** | | | | | [Bank of Problems](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%203/CGI%205th%20Grade%20Fractions%20Story%20Bank.docx) | Unit 6 Inv 2, 3A | [Multiplication (with decimals)](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Where%20Does%20the%20Decimal%20Go%20Multiplication.docx)  [Where Does the Decimal Go?](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Where%20Does%20the%20Decimal%20Go%20Multiplication.docx) | [Division (with decimals)](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Where%20Does%20the%20Decimal%20Go%20Division.docx)  [Where Does the Decimal Go?](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Where%20Does%20the%20Decimal%20Go%20Division.docx) |      |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | | [2. Reason abstractly and quantitatively.](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively3.html) | [3. Construct viable arguments and critique the reasoning of others.](http://elementarymath.dmschools.org/3-construct-viable-arguments-and-critique-the-reasoning-of-others2.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics.html) | [5. Use appropriate tools strategically.](http://elementarymath.dmschools.org/5-use-appropriate-tools-strategically5.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Measurement and Data 1:  Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. | * I can convert units of measurement within the same measurement system. * I can solve multi-step, real world problems that involve converting measurement units. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standard calls for students to convert measurements within the same system of measurement in the context of multi-step, real-world problems. Both customary and standard measurement systems are included; students worked with both metric and customary units of length in second grade. Fifth graders build on their prior knowledge of related measurement units to determine equivalent measurements.  Prior to making actual conversions, they examine the units to be converted, determine if the converted amount will be more or less than the original unit, and explain their reasoning.  They use several strategies to convert measurements. When converting metric measurement, students apply their understanding of place value and decimals. Fifth grade students should explore how the base-ten system supports conversions within the metric system. Students should gain ease in converting units of measures in equivalent forms within the same system. To convert from one unit to another unit, the relationship between the units must be known.  In order for students to have a better understanding of the relationships between units, they need to use measuring tools in class. The number of units must relate to the size of the unit. For example, students have discovered that there are 12 inches in 1 foot and 3 feet in 1 yard. This understanding is needed to convert inches to yards using 12-inch and yardsticks, students can see that three of the 12-inch rulers are equivalent to one yardstick (3 × 12 inches = 36 inches; 36 inches = 1 yard).  Using this knowledge, students can decide whether to multiply or divide when making conversions. Once students have an understanding of the relationships between units and how to do conversions, they are ready to solve multi-step problems that require conversions within the same system. Allow students to discuss methods used in solving the problems. Begin with problems that allow for renaming the units to represent the solution before using problems that require renaming to find the solution.  **Example: 100 cm = 1 meter** |  |  |  |  | | --- | --- | --- | | **Lessons and Resources for Measurement and Data 1** | | | | [Bank of Problems](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%203/CGI%205th%20Grade%20Fractions%20Story%20Bank.docx) | [Converting Inches to Yards](http://www.youtube.com/watch?v=8C5kAIKLcZo) | [Adding Different Units of Length](http://www.youtube.com/watch?v=CAXqVVxn9zA) | | [Converting Units of Length](http://www.youtube.com/watch?v=AGFO-ROxH_I) | [Unit Conversion](http://www.youtube.com/watch?v=w0nqd_HXHPQ) | [The Jumping From Contest](https://s3.amazonaws.com/quantile-resources/resources/downloads/QuantileResource32842.pdf) | | [Cat and Kitten Weights](https://s3.amazonaws.com/quantile-resources/resources/downloads/QuantileResource33912.pdf) | [Converting Fractions](http://www.illustrativemathematics.org/illustrations/293) | [Time Concepts](http://www.thatquiz.org/tq-g/?-j20-l1-nu-p0) | | Unit 6 Inv 3A |  |  |  |  |  |  |  | | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them5.html) | [2. Reason abstractly and quantitatively.](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively3.html) | [5. Use appropriate tools strategically.](http://elementarymath.dmschools.org/5-use-appropriate-tools-strategically5.html) | [6. Attend to precision.](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | |

**Optional Whole Group Lesson Progression**

Unit Pacing: 8 weeks

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| **Resource** | **Location** | **Primary Focus** | **Standard** |
| Investigations | Unit 6   * Inv 1 (do 1.5A before 1.5) * Inv 2 (do 2.5A before 2.5) * Inv 3A | * I can read and write decimals to thousandths using base ten numerals, number names, and expanded form. * I can compare two decimals to the thousandths based on the place value of each digit. * I can use my understanding of place value to round decimals. * I can add, subtract, multiply, and divide decimals to hundredths. * I can explain the reasoning used to solve decimal problems. | 5.NBT.3a  5.NBT.3b  5.NBT.4  5.NBT.7 |
| Sharepoint | [Multiple Names and Formats](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Multiple%20Names%20and%20Formats.docx) | Connecting Fractions to Decimals |  |
| Sharepoint | [Teacher Background Reading: Base-Ten Fraction Models](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Base-Ten%20Fraction%20Models.docx) |
| Investigations | Unit 3   * Inv 1 (1.1 – 1.5) | * I can recognize that in a multi-digit number, a digit in one place represents 1/10 of the place value to its left. * I can recognize that in a multi-digit number, a digit in one place represents 10 times the place value to its right. | 5.NBT.1 |
| Eduplace | [Powers of 10 Lesson](http://www.eduplace.com/math/mw/background/6/01/te_6_01_decimals_ideas1.html) | * I can represent powers of 10 using whole number exponents (103 = 10x10x10 = 1000) * I can explain patterns when multiplying a number by powers of 10. * I can explain the relationship in the placement of the decimal point when a decimal is multiplied or divided by powers of 10. | 5.NBT.2 |
| Website | [Power of 10 Yahtzee](https://docs.google.com/a/bryantschools.org/document/d/1IjYOmNPJSKMM2aCFjDXm9llNaBUPuP7GLSciUuE0TI0/edit?pli=1) |
| Sharepoint | [Base-Ten Fractions to Decimals](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Base-Ten%20Fractions%20to%20Decimals.doc) | * I can read and write decimals to thousandths using base-ten numerals, number names, and expanded form. * I can compare two decimals to the thousandths based on the place value of each digit. | 5.NBT.3 |
| Sharepoint | [Friendly Fractions to Decimals](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Friendly%20Fractions%20to%20Decimals.doc) |
| Sharepoint | [Line ‘Em Up](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Line%20Em%20Up.doc) |
| Sharepoint | [Estimate Then Verify](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Estimate%20Then%20Verify.doc) | * I can use my understanding of place value to round decimals. | 5.NBT.4 |
| Sharepoint | [Decimals on a Friendly Fraction Line](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Decimals%20on%20a%20Friendly%20Fraction%20Line.doc) |
| Sharepoint | [Close to a Friendly Fraction Line](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Close%20to%20a%20Friendly%20Fraction.doc) |
| Sharepoint | [Best Match](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Best%20Match.doc) |
| Sharepoint | [Rounding Decimals Number Line](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Rounding%20Decimals%20Number%20Line.doc) |
| Sharepoint | [Exact Sums and Differences](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Exact%20Sums%20and%20Differences.docx) |
| Sharepoint | [Background reading for teachers:](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/The%20Role%20of%20Estimation.docx)  [The Role of Estimation](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/The%20Role%20of%20Estimation.docx)  [Addition and Subtraction](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/The%20Role%20of%20Estimation.docx) |
| Sharepoint | [Multiplication (with decimals)](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Where%20Does%20the%20Decimal%20Go%20Multiplication.docx)  [Where Does the Decimal Go?](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Where%20Does%20the%20Decimal%20Go%20Multiplication.docx) | * I can add, subtract, multiply, and divide decimals to hundredths and explain the reasoning used to solve decimal problems. | 5.NBT.7 |
| Sharepoint | [Division (with decimals)](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Where%20Does%20the%20Decimal%20Go%20Division.docx)  [Where Does the Decimal Go?](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/5th%20Grade/Unit%204/Where%20Does%20the%20Decimal%20Go%20Division.docx) |

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| **Resource** | **Location** | **Primary Focus** | **Standard** |
| Khan Academy  (YouTube) | [Converting Inches to Yards](http://www.youtube.com/watch?v=8C5kAIKLcZo) | * I can convert units of measurement within the same measurement system. * I can solve multi-step, real world problems that involve converting measurement units. | 5.MD.1 |
| [Adding Different Units of Length](http://www.youtube.com/watch?v=CAXqVVxn9zA) |
| [Converting Units of Length](http://www.youtube.com/watch?v=AGFO-ROxH_I) |
| [Unit Conversion](http://www.youtube.com/watch?v=w0nqd_HXHPQ) |
| Quantiles | [The Jumping From Contest](https://s3.amazonaws.com/quantile-resources/resources/downloads/QuantileResource32842.pdf) |
| Quantiles | [Cat and Kitten Weights](https://s3.amazonaws.com/quantile-resources/resources/downloads/QuantileResource33912.pdf) |
| Illustrative Math | [Converting Fractions](http://www.illustrativemathematics.org/illustrations/293) |
| Website | [Time Concepts](http://www.thatquiz.org/tq-g/?-j20-l1-nu-p0) |

\***Unit pacing approximate. Some lessons may take more or less than one day. The supplemental activities listed at the end of the lesson progression may be imbedded within the Unit 6 Investigations to build capacity for specific concepts. Use teacher discretion based on student need when planning unit.**