Fifth Grade * Common Core Mathematics


| Domain Target | Cluster Target | Domain \& Standard | Standard | Learning Target | A Specific Example | ONE Example of |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| I can explain place value in our number system and how it relates to arithmetic of whole numbers, decimals, and rounding. | I can explain place value in our number system and how powers of 10 are used in multiplication, division, and decimals. <br> I can also round numbers and explain the reasoning (not just a rule). | 5.NBT-2 | 5.NBT-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 explain that when a number is multiplied by a power of 10 , the answer can be found by moving the decimal point to the right (or adding zeros) for each power of 10 to make the number bigger. | $\begin{gathered} 1000 \times 23.4 \text { is } 23,400 \\ \text { OR } \\ 10^{3} \times 23.4 \text { is } 23,400 \end{gathered}$ | Compute the value of $10^{3}$ |
|  |  |  |  | I can explain that when a number is divided by a power of 10 , the answer can be found by moving the decimal point to the left one place for each power of 10 to make the number smaller. | $\begin{gathered} 234 \div 100 \text { is } 2.34 \\ O R \\ 234 \div 10^{2} \text { is } 2.34 \end{gathered}$ | Explain how you might find $\div 100$ without actually co problem. (i.e. explain a the answer) |
|  |  | 5.NBT-3a | 5.NBT-3. Read, write, and compare decimals to thousandths. <br> a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392=3 \times 100+4$ $\times 10+7 \times 1+3 \times(1 / 10)+9 \times(1 / 100)+2$ $\times(1 / 1000)$. | I can correctly read decimal numbers to the thousandths place. | 12.345 is read "twelve and three hundred forty five thousandths". | Write the number 12.345 with correct number names and with base ten numerals. |
|  |  |  |  | I can write decimals to the thousandths using expanded form. | $12.345=10+2+.3+.04+.005$ |  |
|  |  |  |  | I can write decimals to the thousandths using base ten numerals. | $\begin{aligned} & 12.345=1 \times 10+2 \times 1+3 \times \\ & (1 / 10)+4 \times(1 / 100)+5 \times \\ & (1 / 1000) . \end{aligned}$ | Write the number 5.34 in |
|  |  | 5.NBT-3b | 5.NBT-3. Read, write, and compare decimals to thousandths. <br> 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 decimals based on the value of the digits and record the answer using <, >, and = symbols. | $38.279<38.415$ because the 4 in the tenths column gives the second number a higher value. | Using the different place explain why 2.09 is smal |
|  |  | 5.NBT-4 | 5.NBT-4. Use place value understanding to round decimals to any place. | I can round decimals to any given place value. | Rounding 2.37 to the nearest tenth means knowing it is located between 2.3 and 2.4 on the number line and it's closer to 2.4. | What two numbers is 3.2 <br> A. $3.20 \& 3.21$ <br> B. $3.1 \& 3.2$ <br> C. $3.1 \& 3.3$ |
|  | I can perform operations with multidigit whole numbers and with decimals to hundredths. <br> I am fluent in multiplication. | 5.NBT-5 | 5.NBT-5. Fluently multiply multi-digit whole numbers using the standard algorithm. | I can ACCURATELY and without outside aids, multiply multi-digit whole numbers. | $\begin{array}{r} 23 \\ \times 45 \\ \hline 115 \\ 920 \\ \hline 1035 \end{array}$ | Compute $23 \times 45$. |
|  |  | 5.NBT-6. | 5.NBT-6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | I can divide up to a 4 digit dividend by a 2 digit divisor using a variety of strategies. | Explain how to divide 315 by 15 by a method other than the standard algorithm. | John says that to divide 315 by 15 he first divides 15 into the last two digits of 315 (15) which is one and then since 15 doesn't divide into 3 you put a zero so the answer is 10 r 3 . Explain why you agree or disagree. |
|  |  |  |  | I can illustrate and explain division using rectangular arrays or area models. | $9 \begin{array}{cc}15 & \begin{array}{c}135 \div 15=9 \\ \text { as illustrated by } \\ \text { this area model. }\end{array}\end{array}$ | Draw an area model that would illustrate 315 $\div 15=21$. |
|  |  | 5.NBT-7 | 5.NBT-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 compute with decimals to hundredths in a variety of ways. | Show at least two ways to multiply $23 \times 4.76$. | Explain how you would add $3+2.74+8.6$. |
|  |  |  |  | I can explain how my strategy works and the reasoning I used to solve the decimal problem. | Explain how many decimal places are in the answers to $2.4+5.3$ and $2.4 \times$ 5.3 and why it may be different. | Use the grid at the right to model $0.7 \times 0.4$. |


| Domain Target | Cluster Target | Domain \& Standard | Standard | Learning Target | A Specific Example | ONE Example of Assessment |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number and Operations- Fractions * Numb  <br>  I can solve real world <br> problems involving the <br> addition and <br> subtraction of fraction <br> with unlike <br> denominators. |  | ber and Operations- Fractions $\quad * \quad$ Number and Op <br> $\qquad$5.NF-1 <br> Senominators (including mixed <br> dens with unlike <br> numbers) by replacing given fractions with <br> equivalent fractions in such a way as to <br> produce an equivalent sum or difference of <br> fractions with like denominators. <br> For example, 2/3 $+5 / 4=8 / 12+15 / 12=$ <br> 23/12. (In general, $a / b+c / d=(a d+$ <br> hcl/hd $)$ |  | erations Fractions * Number and Operations F | Fractions * Number and Ope | ations Fractions |
|  |  | I can add fractions with unlike denominators by replacing the given fraction with equivalent fractions. | $2 / 3+5 / 4=8 / 12+15 / 12=23 / 12$ | Add 2/3 and 5/4 |
|  |  | I can subtract fractions with unlike denominators by replacing the given fraction with equivalent fractions. | $4 / 5-1 / 2=8 / 10-5 / 10=3 / 10$ | Subtract 1/2 from 4/5. |
|  |  | 5.NF-2 | 5.NF-2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. <br> For example, recognize an incorrect result 2/5 $+1 / 2=3 / 7$, by observing that $3 / 7<1 / 2$. | I can solve word problems involving addition of fractions with like/unlike denominators by using a visual fraction model. | Draw a picture to solve the problem of how much pizza there would be if we combine $1 / 2$ pizza with $1 / 3$. | Explain how to use the model shown to add 5/12 and $1 / 4$. |
|  |  | I can solve word problems involving subtraction of fractions with like/unlike denominators by using a visual |  | f Johns paper strip is $7 / 8^{\prime \prime}$ long and Sue's is $3 / 4$ " long. Whose is longer and by how much? | What subtraction problem is shown on the fraction model shown? |
|  |  | fraction model. |  |  | п1] |
|  |  | I can use benchmark fractions and general number sense to estimate if an answer makes sense. |  | Explain why adding $2 / 5$ and $1 / 2$ to get $3 / 7$ does not make sense. | Is the sum of $3 / 5$ and $7 / 16$ going to be greater than or less than one? |
|  |  |  | 5.NF-3 | 5.NF-3. Interpret a fraction as division of the numerator by the denominator $(a / b=a \div b)$. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. <br> For example, interpret $3 / 4$ as the result of dividing 3 by 4 , noting that $3 / 4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50 -pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie? | I can explain how a fraction represents the division of the numerator by the denominator. | Interpret $3 / 4$ as the result of dividing 3 by 4 , noting that $3 / 4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4 | Change $3 / 4$ into its decimal equivalent. |
|  |  |  |  |  | I can solve word problems involving division of whole numbers where the quotient is a fraction or mixed number by using visual models or equations. | If 9 people want to share a 50 -pound sack of rice equally by weight, how many pounds of rice should each person get? <br> Between what two whole numbers does your answer lie? | If 9 people want to share a 50 -pound sack of rice equally by weight, how many pounds of rice should each person get? |
|  |  |  | 5.NF-4a | 5.NF-4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. <br> a. Interpret the product $(\mathrm{a} / \mathrm{b}) \times \mathrm{q}$ as a parts of a partition of $q$ into $b$ equal parts; equivalently, as the result of a sequence of operations $\mathrm{a} \times \mathrm{q} \div \mathrm{b}$. <br> For example, use a visual fraction model to show $(2 / 3) \times 4=8 / 3$, and create a story context for this equation. Do the same with $(2 / 3) \times(4 / 5)=8 / 15$. (In general, $(a / b) \times$ $(c / d)=a c / b d$. | I can explain how a fraction times a whole number is dividing the whole into parts and taking a certain number of them. | $(2 / 3) \times 12$ means to take 12 and divide it into thirds ( $1 / 3$ of 12 is 4 ) and take two of the parts ( $2 \times 4$ is 8). So $(2 / 3) \times 12=8$ | Explain how the model shown can be used to solve $4 \times 2 / 3$ and what the answer is. |
|  |  | I can multiply a fraction times a fraction. |  |  | $(2 / 3) \times(4 / 5)$ means to take $(4 / 5)$ and divide it into thirds ( $1 / 3$ of $4 / 5$ is $4 / 15$ ) and take two of the parts ( $2 \times$ $4 / 15$ is $8 / 15)$. So $(2 / 3) \times(4 / 5)=$ $(8 / 15)$. Similarly $(2 / 3) \times(4 / 5)=$ $(2 \times 4) /(3 \times 5)=(8 / 15)$. | Compute $2 / 3 \times 4 / 5$. |


| Domain Target | Cluster Target | Domain \& Standard | Standard | Learning Target | A Specific Example | ONE Example of Assessment |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| I can use and explain how to do arithmetic with fractions. | I can multiply and divide fractions. | 5.NF-4b | 5.NF-4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. <br> b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. | I can find the area of a rectangle with fractional sides by tiling it with fractional unit squares. |  | What is the area of the unshaded part of the rectangle? |
|  |  |  |  | I can find the area of a rectangle with fractional sides by multiplying the side lengths. | $1 \frac{3}{4} \begin{array}{\|c\|} \begin{array}{c} \text { the area is } 63 / 8 \text { or } \\ 77 / 8 \text { square units } \end{array} \\ 4 \frac{1}{2} \end{array}$ | What is the area of the rectangle? |
|  |  | 5.NF-5a | 5.NF-5. Interpret multiplication as scaling (resizing), by: <br> a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. | I can explain scaling. | The effect of multiplying 7 by 3 will make a product larger than 7 or more accurately it will be triple the size of 7 . | John wants to enlarge the triangle by a factor of 3 . What will the sides measure on the new triangle? |
|  |  | 5.NF-5b | 5.NF-5. Interpret multiplication as scaling (resizing), by: <br> b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a / b=(n \times a) /(n \times b)$ to the effect of multiplying $\mathrm{a} / \mathrm{b}$ by 1 . | I can explain how to multiply a given number and make it smaller. | Multiplying $3 \times 2 \frac{1}{2}$ will make a product larger than 3. | Which of the following when multiplied by $2 \frac{1}{2}$ will give an product (answer) less than $2 \frac{1}{2}$ ? <br> A. $2 / 3$ <br> B. 1 <br> C. $2 \frac{1}{2}$ <br> D. 2 |
|  |  |  |  | I can explain how to multiply a given number and make it larger. | Multiplying $3 \times \frac{3}{4}$ will make a product smaller than 3. |  |
|  |  |  |  | I can generate equivalent fractions by multiplying by various versions of one. ( $2 / 2,3 / 3, \ldots n / n$ ) | Multiplying by one does not change a number so multiplying $3 / 4$ by $2 / 2$ or $3 / 3$ or $n / n$ creates equivalent forms of $3 / 4$. | Explain why multiplying $2 / 3$ by $5 / 5$ does not change the value of the fraction. |
|  |  | 5.NF-6 | 5.NF-6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. | I can solve real world problems involving multiplication of fractions and mixed numbers. | Decide how many pizzas need to be purchased if each person will eat $1 / 5$ of a pizza and there are 12 people. | How many pizzas need to be purchased if each person will eat $1 / 5$ of a pizza and there are 12 people. |
|  |  | 5.NF-7a | 5.NF-7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. [1] <br> a. Interpret division of a unit fraction by a nonzero whole number, and compute such quotients. <br> For example, create a story context for (1/3) $\div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1 / 3) \div 4=1 / 12$ because $(1 / 12) \times 4=1 / 3$. | I can explain the meaning and process of dividing of a unit fraction by a non-zero whole number. | Create a story context for ( $1 / 3$ ) $\div 4$, and use a visual fraction model to show the quotient. <br> Use the relationship between multiplication and division to explain that $(1 / 3) \div 4=1 / 12$ because $(1 / 12) \times 4=1 / 3$ | Write a real-world problem where the solution involves taking $1 / 3$ and dividing it by 4 and then state the solution. |


| Domain Target | Cluster Target | Domain \& Standard | Standard | Learning Target | A Specific Example | ONE Example of Assessment |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 5.NF-7b | 5.NF-7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. [1] <br> b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div$ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div$ $(1 / 5)=20 \text { because } 20 \times(1 / 5)=4 \text {. }$ | I can explain the meaning and process of dividing a whole number by a unit fraction. | Create a story context for $4 \div(1 / 5)$, and use a visual fraction model to show the quotient. <br> Use the relationship between multiplication and division to explain that $4 \div(1 / 5)=20$ because $20 \times$ $(1 / 5)=4$. | Write a real-world problem where the solution involves taking 4 and dividing it by $1 / 5$ and then state the solution. |
|  |  | 5.NF-7c | 5.NF-7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. [1] <br> c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $1 / 2 \mathrm{lb}$ of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins? | I can solve real world problems involving division of unit fractions by non-zero whole numbers. | How much chocolate will each person get if 3 people share $1 / 2 \mathrm{lb}$ of chocolate equally? | How much pizza will each student get if 5 of them share half a pizza? Draw a model to help explain the solution. |
|  |  |  |  | I can solve real world problems involving division of whole numbers by unit fractions. | How many $1 / 3$-cup servings are in 2 cups of raisins? | The recipe calls for $1 / 3$ cup of flour. If Bob has 2 cups of flour all together, how many times can he repeat the recipe? |
| Measurement \& Data | Measurement \& Data | Measurement \& Data * Measurement \& Data |  | * Measurement \& Data * Measurement \& Data * Measurement \& Data |  | ement \& Data * Measurement |
|  | I can change to different size units within a measurement system. | 5.MD-1 | 5.MD-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 solve multi-step, real world problems involving measurement. | Convert 3.5 meters to cm . Convert 40 pints to gallons. | John has a board measuring $51 / 2$ feet long. How many smaller boards each with a length of 10 inches can he make from this board? |
|  | I can create a line plot with fractional scales and solve problems with this data. | 5.MD-2 | 5.MD-2. Make a line plot to display a data set of measurements in fractions of a unit ( $1 / 2$, $1 / 4,1 / 8)$. Use operations on fractions for this grade to solve problems involving information presented in line plots. <br> For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally. | I can make a line plot (dot plot) to display a set of fractional data. | Measure the head circumference of all the students to the nearest $1 / 4$ inch and display the results on a line plot (dot plot). | Create a line plot from the following data: 1/2; $11 / 2 ; 3 / 4 ; 1 ; 1 / 2 ; 11 / 4 ; 3 / 4 ; 1 ; 3 / 4$; 3/4; 1; 3/4; 1 1/4. |
|  |  |  |  | I can use grade level fraction operations to solve problems involving information from a line plot (dot plot). | Given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally. | Three beakers hold $31 / 4 \mathrm{ml}, 21 / 4 \mathrm{ml}$, and 1 $1 / 2 \mathrm{ml}$. How much would each beaker contain if we distributed the liquid equally in each beaker? |


| Domain Target | Cluster Target | Domain \& Standard | Standard | Learning Target | A Specific Example | ONE Example of Assessment |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| I can explain how the units used in measurement relate and change depending on their size. <br> I can display data with a line plot and solve problems involving area. | I can explain the concept of volume and how it is measured. <br> I can solve problems involving volume. | 5.MD-3a | 5.MD-3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. <br> a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. | I can explain that volume is an attribute of solid figures and not plane figures. | The "squares" used to measure area are different than the "cubes" needed to measure volume. | What is the term used to find the space contained inside a container? |
|  |  |  |  | I can explain that volume is measured in "unit cubes" cubes of one unit on each side. | Solid figures need a solid unit, a cube, to measure volume. | Which of the following might be the volume a box? <br> A. 8 in. <br> B. 8 square in. <br> C. 8 cubic in. <br> D. 8 triangle in. |
|  |  | 5.MD-3b | 5.MD-3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. <br> b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of $n$ cubic units. | I can explain that the volume of a solid figure is measured in the number of "cubes" it contains. | Have students explain the concept of cubes filling a space and possibly comparing that to area where squares fill a plane. | How many cubes measuring 1 cm on each side will fit into a box measuring 3 cm by 8 cm by 12 cm ? |
|  |  | 5.MD-4 | 5.MD-4. Measure volumes by counting unit cubes, using cubic cm , cubic in, cubic ft , and improvised units. | I can measure volumes by counting unit cubes of various sizes. | Fill a rectangular prism with various sized cubes and have students count them to estimate the volume. | Sue found she could put exactly 40 one inch cubes in a box. What is its volume? |
|  |  |  | 5.MD-5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. <br> a. Find the volume of a right rectangular | I can find the volume of a right rectangular prism with whole-number sides by packing it with unit cubes. | Students should experience filling a rectangular prism with cubes, counting these cubes, and relating this number to the volume of the prism. | Sue found she could put exactly 40 one inch cubes in a box. What is its volume? |
|  |  |  | packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. | I can find the volume of a right rectangular prism with whole-number sides by multiplying (length) $\times$ (width) $\times$ (height). | Students should discover the efficient way of counting the cubes in a rectangular prism by generalizing the short cut of multiplying the three dimensions. | What is the volume of the rectangular prism that measures 23 cm by 10 cm by 18 cm ? |
|  |  | 5.MD-5b | 5.MD-5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. <br> b. Apply the formulas $\mathrm{V}=\mathrm{I} \times \mathrm{w} \times \mathrm{h}$ and $\mathrm{V}=$ b $\times \mathrm{h}$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. | I can solve real world volume problems by using the conventional formulas of $\mathrm{V}=\mathrm{l} \bullet \mathrm{w} \bullet \mathrm{h}$ and $\mathrm{V}=\mathrm{B} \bullet \mathrm{h}$. | Students can explain and apply the conventional formulas to find volumes of rectangular prisms in a real world problem setting. | Bill found that he could put exactly 14 one centimeter cubes to cover the bottom of a box. If the box is 7 cm high, how many one centimeter cubes will the box hold in all? |
|  |  |  | 5.MD-5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. |  |  | Find the total volume of the two boxes. |
|  |  | 5.MD-5c | c. Recognize volume as additive. Find volumes of solid figures composed of two nonoverlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems. | I can find the volume of a solid figure composed of right rectangular prisms by adding the volumes of each rectangular prism. | Have students create a new shape by putting 2 or more "boxes" together and then find the total volume. |  |



Created by Carl Jones, Darke County ESC, Karen Smith, Auglaize County ESC, Virginia McClain, Sidney City

