

Domain: 5.OA Operations and Algebraic Thinking

Cluster:

A. Write and interpret numerical expressions.

B. Analyze patterns and relationships.

1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.
3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.

Essential Questions	Enduring Understandings	Activities, Investigations and Student Experiences
<p>1. How can you interpret numerical expressions without solving for the answer.</p> <p>2. How can numeric expressions be simplified using order of operations?</p> <p>3. How can order of operations relate to real world situations?</p> <p>4. How can you identify patterns between corresponding terms?</p>	<p>Write and interpret numerical expressions.</p> <p>Understand that there are rules to follow when multiple operations are present in order to correctly solve the problem in the right order</p> <p>Analyze patterns and relationships.</p> <p>Patterns can be used to help multiply and divide.</p> <p>Form ordered pairs consisting of corresponding terms from two given patterns</p>	<ul style="list-style-type: none"> - Timed multiplication/division fact quizzes - Respond to Essential Questions at start and end of unit - Use vocabulary in speaking and writing, as needed - Pre- and Post-Assessments - Let's Practice and Guided Practice problems from the textbook <ul style="list-style-type: none"> - Workbook pages for HW - Khan Academy tutorials and assignments - Mini White Board problems for immediate assessment - Math Antics videos - Interactive notebook assignments - Error analysis and critiquing the reasoning of others <p style="text-align: center;"><u>Sample Exit Tickets and/or Extended Response Questions:</u></p> <p>Numerical expressions: Mr. Perez writes the following phrase on the board: 2 more than 15 divided by 3. Determine if the phrase can be translated into each of the numerical expressions:</p> <ol style="list-style-type: none"> a. $15 \div 3 + 2$ b. $(2 + 15) \div 3$ c. $15 \div (3 + 2)$ d. $2 + (15 \div 3)$ <p>Order of operations: Is the value of the numerical expression 45?</p> <ol style="list-style-type: none"> a. $5 \times (12 - 10) + 7 \times (2 + 5)$ b. $20 + 3 \times [5 + (30 \div 3)]$ c. $10 \div 2 + 5 \times (6 + 2)$ d. $15 - 5 \times 2 + [4 \times (3 + 5) + 8]$ e. $15 \times [13 - (7 + 3) \div 2 - 4]$ <p>Order of operations: Luke and Andrea evaluated the numerical expression: $(3 + 5) \times 7 - [10 + (45 - 15) \div 5]$.</p>

		<p>Luke said the numerical expression has a value of 48. Andrea said that it has a value of 40. Which student is correct? Describe a possible error that one of the students could have made.</p> <p style="text-align: center;"><u>Suggested Activities:</u></p> <p>Order of Operations: Leveled problems (based on student ability) where they solve an order of operations problem using the “pizza method” to get one final answer.</p> <p>Finding patterns: Students are paired up and use grid paper. One partner makes a list of 6 measurements in centimeters, the other lists the measurements in inches. Write the measurements as ordered pairs, then graph the points. Students will discuss and analyze any patterns they see.</p>
Equipment Needed		Teacher Resources
<ul style="list-style-type: none"> ● Dry Erase Boards ● Chromebooks ● Place Value Charts ● Grid paper ● Pre-made expressions for students ● Construction paper ● Workbooks ● Post it notes 		<ul style="list-style-type: none"> ● Math In Focus Textbook ● Khan Academy website ● Teachers Pay Teachers website ● IXL website ● Math Antics Website ● Performance Coach Workbook ● Pinterest ● PARCC website

Domain: 5.NBT Number and Operations in Base Ten

Cluster:

A. Understand the place value system.

B. Perform operations with multi-digit whole numbers and with decimals to hundredths.

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.*
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.*
3. *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., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.*
 - b. *Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.*
4. *Use place value understanding to round decimals to any place.*
5. *Fluently multiply multi-digit whole numbers using the standard algorithm.*
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.*

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.

Essential Questions	Enduring Understandings	Activities, Investigations and Student Experiences												
<p>1. How can whole numbers and decimals be written in different ways?</p> <p>2. How can numbers be compared and rounded according to their place value?</p> <p>3. How can patterns be used to help you multiply and divide whole numbers and decimals?</p> <p>4. How can multiplication and division be used to solve real-world problems?</p> <p>5. How can thousandths be represented as a fraction or decimal in standard, word, and expanded form?</p> <p>6. How can models be used to represent decimal operations?</p>	<p>Understand the place value system.</p> <p>Numbers can be written in standard, word, and expanded form</p> <p>Rounding numbers up to 1,000,000</p> <p>Numbers with a base of 10 have a unique relationship with the decimal point</p> <p>Multiplication and division facts can help solve complex division problems</p> <p>Perform operations with multi-digit whole numbers and with decimals to thousandths.</p> <p>Estimation can be used to check the reasonableness of an answer.</p>	<ul style="list-style-type: none"> - Timed multiplication/division fact quizzes - Respond to Essential Questions at start and end of unit - Use vocabulary in speaking and writing, as needed - Pre- and Post-Assessments - Let's Practice and Guided Practice problems from the textbook <ul style="list-style-type: none"> - Workbook pages for HW - Khan Academy tutorials and assignments - Mini White Board problems for immediate assessment - Math Antics videos - Interactive notebook assignments - Error analysis and critiquing the reasoning of others <p><u>Sample Exit Tickets and/or Extended Response Questions:</u></p> <p>Estimating: The Owen family has a new apartment and wants to renovate it. Their apartment has 3 bedrooms, a living room, a dining room, a laundry room, and a kitchen. The cost for the renovation is shown:</p> <table border="1" data-bbox="883 1125 1536 1461"> <thead> <tr> <th>Description</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>Hardwood flooring for the living room, dining room, and 3 bedrooms</td> <td>\$7,650 per room</td> </tr> <tr> <td>Bookshelves in 2 rooms</td> <td>\$3,840 per room</td> </tr> <tr> <td>Closet organizers in master bedroom closet</td> <td>\$4,621</td> </tr> <tr> <td>Kitchen cabinets</td> <td>\$16,705</td> </tr> <tr> <td>Other furniture</td> <td>\$7,500</td> </tr> </tbody> </table> <p>Estimate how much the family has to spend on the renovation by rounding each cost to the nearest thousand dollars.</p> <p>Multi-digit multiplication: Guttenberg is holding a concert to raise money for a new park. One thousand, seven hundred eighty-four adult tickets and 953 student tickets have been sold.</p> <ul style="list-style-type: none"> ○ If adult tickets cost \$37 each and student tickets cost \$16 each, how much money has been raised in total? ○ Explain how you got your answer. 	Description	Cost	Hardwood flooring for the living room, dining room, and 3 bedrooms	\$7,650 per room	Bookshelves in 2 rooms	\$3,840 per room	Closet organizers in master bedroom closet	\$4,621	Kitchen cabinets	\$16,705	Other furniture	\$7,500
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		<p>Division: Angela needs help with long division, her problem is $9,684 \div 34$. Find the quotient and remainder and explain to Angela what you did for each step. Don't forget to include how you know if the remainder makes sense.</p> <p>Decimals: Last week, Sue worked 7.5 hours each day on Monday and Tuesday and 6.5 hours each day on Wednesday, Thursday, and Friday. She did not work on Saturday or Sunday. If she is paid \$9.50 an hour, how much did she earn last week?</p> <p style="text-align: center;"><u>Suggested Activities:</u></p> <p>Place value charts: Use place value charts to read and write numbers up to 1,000,000</p> <ul style="list-style-type: none"> - Also for decimals <p>Comparing numbers to the millions place: Groups of 5-6 students each get an index card and must place themselves in order from least to greatest. The class will determine if their order is correct or not.</p> <p>Place Value Mini Project: 'What Number Am I?'</p> <ul style="list-style-type: none"> • Have students create their own number riddles. • Clues should be given using the place or value of the digit <p>Multiplication/Division: Students create 'fortune tellers' with multiplication and division problems on the inside. Students must solve the problems with a partner and check each others answers.</p> <p>Multiplication/Division: Students in groups get a deck of cards (#'s 1-9 only) and take turns creating 2 digit, 3 digit, and 4 digit numbers that they will multiply or divide and compare their answers.</p> <p>Decimals: Students are paired up (can pick their partner). Each student creates 5 numbers (up to the thousandths; no bigger than the millions) on put them on pre-cut index cards. Students shuffle the deck and flip over each number and both must write all forms of the number (expanded and word form) and compare their answers.</p>
Equipment Needed		Teacher Resources

- Dry Erase Boards
- Chromebooks
- Place Value Charts
- Pre-made index cards with numbers printed on them
- Construction paper
- Copies of fortune tellers for students to create
- Decks of cards
- Pre cut index cards for the students
- Workbooks
- Post it notes

- Math In Focus Textbook
- Khan Academy website
- Teachers Pay Teachers website
- IXL website
- Math Antics Website
- Performance Coach Workbook
- Pinterest
- PARCC website

Domain: 5.NF Number and Operations—Fractions

Cluster:

A. Use equivalent fractions as a strategy to add and subtract fractions.

B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)
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. For example, recognize an incorrect result $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$, by observing that $\frac{3}{7} < \frac{1}{2}$.
3. Interpret a fraction as division of the numerator by the denominator ($\frac{a}{b} = a \div b$). 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. For example, interpret $\frac{3}{4}$ as the result of dividing 3 by 4, noting that $\frac{3}{4}$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $\frac{3}{4}$. 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?
4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
 - a. Interpret the product $(\frac{a}{b}) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(\frac{2}{3}) \times 4 = \frac{8}{3}$, and create a story context for this equation. Do the same with $(\frac{2}{3}) \times (\frac{4}{5}) = \frac{8}{15}$. (In general, $(\frac{a}{b}) \times (\frac{c}{d}) = \frac{ac}{bd}$.)
 - 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.
5. Interpret multiplication as scaling (resizing), by:
 - 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.
 - 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 $\frac{a}{b} = \frac{(n \times a)}{(n \times b)}$ to the effect of multiplying $\frac{a}{b}$ by 1.
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. New Jersey Student Learning Standards for Mathematics 6
7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. 1
 - a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(\frac{1}{3}) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(\frac{1}{3}) \div 4 = \frac{1}{12}$ because $(\frac{1}{12}) \times 4 = \frac{1}{3}$.
 - b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (\frac{1}{5})$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (\frac{1}{5}) = 20$ because $20 \times (\frac{1}{5}) = 4$.
 - 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 $\frac{1}{2}$ lb of chocolate equally? How many $\frac{1}{3}$ -cup servings are in 2 cups of raisins?

Essential Questions	Enduring Understandings	Activities, Investigations and Student Experiences										
<p>1. How can you add and subtract unlike fractions and mixed numbers by rewriting them with like denominators?</p> <p>2. Can whole numbers, fractions, and mixed numbers be multiplied or divided in any combination?</p> <p>3. Can models be used to represent real-world situations with fractions?</p> <p>4. How do division expressions, fractions, and mixed numbers relate to each other?</p>	<p>Use equivalent fractions as a strategy to add and subtract fractions.</p> <p>Fractions and mixed numbers are used to name wholes and parts of the whole.</p> <p>Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p> <p>Understand and apply the relationships between fractions, mixed numbers, and division expressions</p> <p>Express fractions, division expressions, and mixed numbers as decimals</p> <p>Understand all operations with fractions</p> <p>Use models to represent real-world situations</p>	<ul style="list-style-type: none"> - Timed multiplication/division fact quizzes - Respond to Essential Questions at start and end of unit - Use vocabulary in speaking and writing, as needed - Pre- and Post-Assessments - Let's Practice and Guided Practice problems from the textbook <ul style="list-style-type: none"> - Workbook pages for HW - Khan Academy tutorials and assignments - Mini White Board problems for immediate assessment - Math Antics videos - Interactive notebook assignments - Error analysis and critiquing the reasoning of others <p style="text-align: center;"><u>Sample Exit Tickets and/or Extended Response Questions:</u></p> <p>Division expressions: Joan buys 15 apples and shares them equally with her 3 friends. How many apples does each person get? Give your answer as a mixed number and a decimal.</p> <p>Adding/Subtracting fractions: Compare each sum or difference to 1 whole. Write the problem in the correct box.</p> <p style="text-align: center;"> $1 \frac{5}{12}$ $1 \frac{1}{10} - \frac{1}{8}$ $1 \frac{3}{6} - \frac{3}{4}$ $9/10 + \frac{1}{8}$ $7/9 + \frac{1}{4}$ $4/7 + \frac{1}{3}$ </p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">Less than 1</th> <th style="padding: 5px;">Greater than 1</th> </tr> </thead> <tbody> <tr> <td style="height: 30px;"></td> <td style="height: 30px;"></td> </tr> </tbody> </table> <p>Multiply/divide fractions: Sheila wants to bake 6 muffins but her recipe is for 12 muffins. This means she will only need half of the ingredients listed in the recipe. How much of each ingredient does she need?</p> <p>Ingredients:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1 c banana chips</td> <td>7 tbsp oil</td> <td>2 eggs</td> </tr> <tr> <td>$\frac{3}{4}$ c flour</td> <td>$\frac{1}{4}$ c walnuts</td> <td></td> </tr> </table> <p style="text-align: center;"><u>Suggested Activities:</u></p> <p>Equivalent fractions: Students will be in pairs and play a matching game with equivalent fractions.</p>	Less than 1	Greater than 1			1 c banana chips	7 tbsp oil	2 eggs	$\frac{3}{4}$ c flour	$\frac{1}{4}$ c walnuts	
Less than 1	Greater than 1											
1 c banana chips	7 tbsp oil	2 eggs										
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		<p>Add/subtract fractions: Students will be in pairs and play a matching game. Half of the cards will have an adding or subtracting problem and half of the cards will have an answer. The student who answers it first, will collect the pair of cards. The student with the most amount of pairs will win.</p> <p>Fractions: Students will use post it notes to model fraction word problems that require making bar models</p> <p>Multiply/divide fractions: Students can search up their favorite recipe. Students will then have to double/triple the recipe as well as taking $\frac{1}{2}$ of the recipe.</p> <p>Models/real-world problems: Students work in leveled groups and works together to create models to represent the given situation (below grade level students will receive easy problems; at grade level will receive on grade level problems; above grade level students will receive advanced problems)</p> <ul style="list-style-type: none"> - Students must then solve the problems mathematically
Equipment Needed		Teacher Resources
<ul style="list-style-type: none"> ● Dry Erase Boards ● Chromebooks ● Workbooks ● Pre made cards for matching games ● Post it notes ● Pre made leveled questions 		<ul style="list-style-type: none"> ● Math In Focus Textbook ● Khan Academy website ● Teachers Pay Teachers website ● IXL website ● Math Antics Website ● Performance Coach Workbook ● Pinterest ● PARCC website

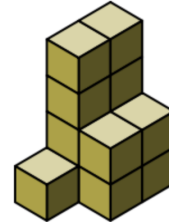
Domain: 5.MD Measurement and Data
<p>Cluster:</p> <p>A. Convert like measurement units within a given measurement system.</p> <p>B. Represent and interpret data.</p> <p>C. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</p>
<ol style="list-style-type: none"> 1. <i>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> 2. <i>Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. 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>

3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
 - 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.
 - 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.
4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units.
5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
 - a. Find the volume of a right rectangular prism with whole-number side lengths by 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. 1 Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade. New Jersey Student Learning Standards for Mathematics 7
 - b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ 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.
 - 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.

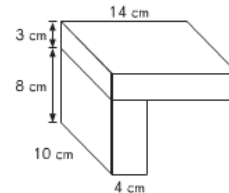
Essential Questions	Enduring Understandings	Activities, Investigations and Student Experiences										
<ol style="list-style-type: none"> 1. How can you compare size or length when measured in different units? 2. How can you apply converting units of measurement to real-world situations? 3. How can you display data in a graph that highlights some of the features of the data? 4. How can solid figures be identified and classified by their faces, edges, and vertices? 5. How can you find the volume of solid figures? 	<p>Make line plots to represent data given in fractions of a unit and use operations on fractions to solve problems</p> <p>Convert like measurement units within a given measurement system.</p> <p>Represent and interpret data.</p> <p>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</p> <p>Understand that all solids can be identified and classified by their characteristics</p> <p>Apply the concept of unit cubes to finding the volume of a solid.</p> <p>Understand that cubes can be ‘hidden’ but they must be counted when finding the volume</p> <p>Compare volumes of cubes and rectangular prisms</p> <p>Solve real-world problems involving the volume of a solid figure composed of 2 rectangular prisms.</p>	<ul style="list-style-type: none"> - Timed multiplication/division fact quizzes - Respond to Essential Questions at start and end of unit - Use vocabulary in speaking and writing, as needed - Pre- and Post-Assessments - Let’s Practice and Guided Practice problems from the textbook <ul style="list-style-type: none"> - Workbook pages for HW - Khan Academy tutorials and assignments - Mini White Board problems for immediate assessment - Math Antics videos - Interactive notebook assignments - Error analysis and critiquing the reasoning of others <p style="text-align: center;"><u>Sample Exit Tickets and/or Extended Response Questions:</u></p> <p>Line Plots: Noah recorded the weight of tomatoes he picked from his garden on one day.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: center;">Weight (lbs)</td> <td style="text-align: center;">3/8</td> <td style="text-align: center;">1/2</td> <td style="text-align: center;">5/8</td> <td style="text-align: center;">3/4</td> </tr> <tr> <td style="text-align: center;">Frequency</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> </tr> </tbody> </table> <p>Display Noah’s data on a line plot.</p> <p>Converting: Nikki and Manuel picked 75 pounds of apples. If each apple weighs about 5 ounces, how many apples did they pick?</p> <p>Converting: Compare each measurement to 2 quarts. Write the measurements in the correct box. $\frac{1}{2}$ gallon 6 cups 1 gallon 4 pints 8 cups 6 pints</p>	Weight (lbs)	3/8	1/2	5/8	3/4	Frequency	2	3	4	1
Weight (lbs)	3/8	1/2	5/8	3/4								
Frequency	2	3	4	1								

Less than 2 quarts	Equal to 2 quarts	More than 2 quarts

Volume with unit cubes: Find the volume of this figure if each cube is 1 square inch.



Volume: Find the volume of the solid that is composed of 2 rectangular prisms:



Explain how you used the formula to find the volume.

Suggested Activities:

Line plots: Have students measure their foot to the nearest eighth of a foot. Record all measurements for the class. Students will work in pairs to create a line plot and answer questions about the information displayed. (Ex: what is the total length of students whose foot is about $\frac{1}{2}$ of a foot?)

Converting: Students use what they know about converting units of measurement in the metric system (**K**ing **H**enry **D**oes **B**ake **D**elicious **C**orn **M**uffins; kilo-, hecto-, deka-, base, deci-, centi-, milli-) in order to complete a color by number by converting units in the metric system.

- Students will also color a "Gallon-Bot" to help with converting units in gallons and under

Volume with unit cubes: Students will be given unit cubes and must model figures on board and calculate the volume of these figures.

		Volume: Students bring in various sized boxes. Students are either paired up or put into groups and must calculate the volume of each box.
Equipment Needed		Teacher Resources
<ul style="list-style-type: none"> ● Dry Erase Boards ● Chromebooks ● Workbooks ● Post it notes ● Unit cubes ● Graph paper ● Metric system hand out ● Gallon-Bot handout ● Boxes of various sizes 		<ul style="list-style-type: none"> ● Math In Focus Textbook ● Khan Academy website ● Teachers Pay Teachers website ● IXL website ● Math Antics Website ● Performance Coach Workbook ● Pinterest ● PARCC website

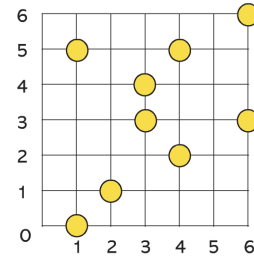
Domain: 5.G Geometry		
Cluster:		
A. Graph points on the coordinate plane to solve real-world and mathematical problems.		
B. Classify two-dimensional figures into categories based on their properties.		
<ol style="list-style-type: none"> 1. <i>Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).</i> 2. <i>Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.</i> 3. <i>Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.</i> 4. <i>Classify two-dimensional figures in a hierarchy based on properties.</i> 		
Essential Questions	Enduring Understandings	Activities, Investigations and Student Experiences
<p>1. How can you plot a list of coordinates on a graph to show the data?</p> <p>2. What are the properties of geometric figures? How can you distinguish between the different sided shapes?</p>	<p>Graph points on the coordinate plane to solve real-world and mathematical problems.</p> <p>Classify two-dimensional figures into categories based on their properties.</p> <p>Understand that all shapes can be identified and classified by their characteristics.</p>	<ul style="list-style-type: none"> - Timed multiplication/division fact quizzes - Respond to Essential Questions at start and end of unit - Use vocabulary in speaking and writing, as needed - Pre- and Post-Assessments - Let's Practice and Guided Practice problems from the textbook <ul style="list-style-type: none"> - Workbook pages for HW - Khan Academy tutorials and assignments - Mini White Board problems for immediate assessment - Math Antics videos

Compare the properties of each figure for each category of quadrilaterals

- Interactive notebook assignments
- Error analysis and critiquing the reasoning of others

Sample Exit Tickets and/or Extended Response Questions:

Graphing: Jerry played a game of darts at the carnival. To win a prize, his darts must land on at least three circles on the dart board. His darts landed on these spaces: (3, 5), (1, 4), (2, 2), (0, 1), and (4, 2). Did Jerry win a prize?



Quadrilaterals: Select true or false for each statement about quadrilaterals:

- All quadrilaterals have 4 sides
- All quadrilaterals have right angles
- The sides of a square are congruent
- A trapezoid is also a rectangle
- A rhombus is a rectangle

Suggested Activities:

Graphing: Students will receive graph paper and a list of coordinates they must plot. They will get specific pictures in the first quadrant depending on their skill level

Shapes: Create flippables that have the different shapes and their properties inside.

Equipment Needed

- Dry Erase Boards
- Chromebooks
- Workbooks
- Post it notes
- Graph paper
- Leveled graphing pictures (coordinates)

Teacher Resources

- Math In Focus Textbook
- Khan Academy website
- Teachers Pay Teachers website
- IXL website
- Math Antics Website
- Performance Coach Workbook
- Pinterest
- PARCC website