

Fairfield Township School Grade 3 Math Curriculum Guide

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p>Unit 1</p> <p>Multiplication, Division and Concepts of Area</p>	<ul style="list-style-type: none"> ■ 3.OA.A.1 ■ 3.OA.A.2 ■ 3.OA.A.3* ■ 3.OA.A.4 ■ 3.OA.B.6 ■ 3.MD.C.5 ■ 3.MD.C.6 ■ 3.MD.C.7a-b ● 3.NBT.A.1 ● 3.NBT.A.3 	<ul style="list-style-type: none"> • Represent and solve problems involving multiplication and division • Understand properties of multiplication and the relationship between multiplication and division • Understand concepts of area and relate area to multiplication and addition (Geometric measurement) • Use place value understanding and properties of operations to perform multi-digit arithmetic 	<p>MP.1 Make sense of problems and persevere in solving them.</p>
<p><i>Unit 1:</i> <i>Suggested Open Educational Resources</i></p>	<p>3.OA.A.2 Fish Tanks 3.OA.A.3 Analyzing Word Problems Involving Multiplication 3.OA.A.4 Finding the unknown in a division equation 3.MD.C.6 Finding the Area of Polygons 3.MD.C.7a India's Bathroom Tiles 3.NBT.A.1 Rounding to 50 or 500 3.NBT.A.1 Rounding to the Nearest Ten and Hundred 3.NBT.A.3 How Many Colored Pencils?</p>		<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p>
<p>Unit 2</p> <p>Modeling Multiplication, Division and Fractions</p>	<ul style="list-style-type: none"> ■ 3.OA.A.3* ■ 3.OA.B.5 ■ 3.MD.C.7c ■ 3.MD.C.7d* ■ 3.OA.C.7* ■ 3.OA.D.8* ■ 3.OA.D.9 ● 3.NBT.A.2* ■ 3.NF.A.1 □ 3.G.A.2 	<ul style="list-style-type: none"> • Represent and solve problems involving multiplication and division • Understand properties of multiplication and the relationship between multiplication and division • Geometric measurement: understand concepts of area and relate area to multiplication and to addition • Multiply and divide within 100 • Solve problems involving the four operations, and identify and explain patterns in arithmetic • Use place value understanding and properties of operations to perform multi-digit arithmetic • Develop understanding of fractions as numbers. • Reason with shapes and their attributes 	<p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>
<p><i>Unit 2:</i> <i>Suggested Open Educational Resources</i></p>	<p>3.OA.A.3 Two Interpretations of Division 3.OA.B.5 Valid Equalities? (Part 2) 3.MD.C.7c Introducing the Distributive Property 3.OA.C.7 Kiri's Multiplication Matching Game 3.OA.D.8 The Class Trip 3.OA.D.9 Addition Patterns</p>		

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	3.NF.A.1 Naming the Whole for a Fraction 3.G.A.2 Representing Half of a Circle		
Unit 3 Fractions as Numbers and Measurement	<ul style="list-style-type: none"> ■ 3.NF.A.2 ■ 3.NF.A.3 ■ 3.MD.A.1 ■ 3.MD.A.2 ▢ 3.G.A.1 ● 3.MD.D.8 ■ 3.OA.C.7* 	<ul style="list-style-type: none"> • Develop understanding of fractions as numbers • Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects • Reason with shapes and their attributes • Recognize perimeter as an attribute of plane figures and distinguish between linear and area measure • Multiply and divide within 100 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p>
Unit 3: Suggested Open Educational Resources	3.NF.A.2 Closest to 1/2 3.NF.A.2 Find 1 Starting from 5/3 3.NF.A.2 Locating Fractions Greater than One on the Number Line 3.NF.A.3b, 3.G.A.2, 3.MD.C.6 Halves, thirds, and sixths 3.MD.A.1 Dajuana's Homework 3.MD.A.2 How Heavy? 3.MD.D Shapes and their Insides		<p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p>
Unit 4 Representing Data	<ul style="list-style-type: none"> ▢ 3.MD.B.3 ▢ 3.MD.B.4 ■ 3.OA.C.7* ■ 3.OA.D.8* ● 3.NBT.A.2* ■ 3.MD.C.7d* 	<ul style="list-style-type: none"> • Represent and interpret data • Multiply and divide within 100 • Use place value understanding and properties of operations to perform multi-digit arithmetic • Understand concepts of area and relate area to multiplication and to addition 	<p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p>
Unit 4: Suggested Open Educational Resources	3.MD.C.7d Three Hidden Rectangles 3.OA.D.8 The Stamp Collection 3.NBT.A.2, 3.MD.B.3, 3.OA.A.3 Classroom Supplies		<p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>

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Unit 1 Grade 3 – Multiplication, Division, and Concept of Area		
Content & Practice Standards	Suggested Standards from Mathematical Practice	Transfer
<p>■ 3.OA.A.1. Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe and/or represent a context in which a total number of objects can be expressed as 5×7.</p>	<p>MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Multiplication is a means to determine the total number of objects when there are a specific number of groups with the same number of objects in each group. • Multiplication gives the same result as repeated addition. • Product of two whole numbers is the total number of objects in a number of equal groups. <p>Students are able to:</p> <ul style="list-style-type: none"> • interpret products of whole numbers as a total number of objects. • use repeated addition to find the total number of objects arranged in an array and in equal groups and compare to the result of multiplication. • describe a context in which a total number of objects is represented by a product. • interpret the product in the context of a real-world problem. <p>Learning Goal 1: Interpret products of whole numbers as repeated addition and as the total number of objects (up to 100) in equal groups or arrays.</p>
<p>■ 3.OA.A.2. Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe and/or represent a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.</p>	<p>MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Division is a means to finding equal groups of objects. • Division gives the same result as repeated subtraction. • Quotient of two whole numbers is the number of objects in each share when objects are grouped equally into shares. • Quotient of two whole numbers is the number of shares when objects are grouped into equal shares of objects. <p>Students are able to:</p> <ul style="list-style-type: none"> • interpret division of whole numbers as a number of equal shares or the number of groups when objects are divided equally. • use repeated subtraction to find the number of shares or the number of groups and compare to the result of division. • describe a context in which the number of shares or number of groups is represented with division. • interpret the quotient in the context of a real-world problem. <p>Learning Goal 2: Interpret the quotient as a set of objects (up to 100) partitioned equally into a number of shares and as the number of equal shares.</p>

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Unit 1 Grade 3 – Multiplication, Division, and Concept of Area		
Content & Practice Standards	Suggested Standards from Mathematical Practice	Transfer
<p>■ 3.OA.A.3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. *(benchmarked)</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics.</p>	<p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> multiply to solve word problems involving equal groups and arrays. divide to solve word problems involving equal groups and arrays. represent a word problem with a drawing showing equal groups, arrays, equal shares, and/or total objects. represent a word problem with an equation. <p>Learning Goal 3: Use multiplication and division within 100 to solve word problems by modeling equal groups or arrays and by writing equations to represent equal groups or arrays</p>
<p>■ 3.OA.A.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \div 3$, $6 \times 6 = ?$.</p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Equal sign indicates that the value of the numerical expressions on each side are the same. Unknown in an equation ($4 \times \underline{\quad} = 20$ and $20 = ? \times 4$) represents a number. Unknown can be in different positions. Letters can represent numbers in equations. <p>Students are able to:</p> <ul style="list-style-type: none"> determine which operation is needed to find the unknown. multiply or divide, within 100, to find the unknown whole number in a multiplication or division equation. <p>Learning Goal 4: Determine the unknown in a division or multiplication equation relating 3 whole numbers (within 100).</p>
<p>■ 3.OA.B.6. Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.</p>	<p>MP.3 Construct viable arguments and critique the reasoning of others. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Division can be represented as a multiplication problem having an unknown factor. Relationships between factors, products, quotients, divisors and dividends. <p>Students are able to:</p> <ul style="list-style-type: none"> write division number sentences as unknown factor problems. solve division of whole numbers by finding the unknown factor. <p>Learning Goal 5: Solve division of whole numbers by representing the problem as an unknown factor problem.</p>

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Unit 1 Grade 3 – Multiplication, Division, and Concept of Area		
Content & Practice Standards	Suggested Standards from Mathematical Practice	Transfer
<p>■ 3.MD.C.5. Recognize area as an attribute of plane figures and understand concepts of area measurement.</p> <p>3.MD.C.5a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.</p> <p>3.MD.C.5b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.</p> <p>■ 3.MD.C.6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units).</p>	<p>MP 2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Area is the amount of space inside the boundary of a (closed) figure. • Square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area. • Plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units area can be found by covering a figure with unit squares. • Area of a figure can be determined using unit squares of other dimensions. <p>Students are able to:</p> <ul style="list-style-type: none"> • count unit squares in order to measure the area of a figure. • use unit squares of centimeters, meters, inches, feet, and other units to measure area. <p>Learning Goal 6: Measure areas by counting unit squares (cm², m², in², ft², and improvised units).</p>
<p>■ 3.MD.C.7. Relate area to the operations of multiplication and addition.</p> <p>3.MD.C.7a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.</p> <p>3.MD.C.7b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.</p>	<p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Area of a rectangle is found by multiplying the side lengths. • Area of a rectangle may be found by tiling. <p>Students are able to:</p> <ul style="list-style-type: none"> • tile a rectangle with unit squares. • multiply side lengths of a rectangle to find its area and compare the result to that found by tiling the rectangle with unit squares. • solve real world and mathematical problems involving measurement. • represent a rectangular area as the product of whole-numbers. <p>Learning Goal 7: Tile a rectangle to find its area and explain the relationship between tiling and multiplying side lengths to find the area of rectangles; solve real world problems by multiplying side lengths to find areas of rectangles.</p>

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Unit 1 Grade 3 – Multiplication, Division, and Concept of Area		
Content & Practice Standards	Suggested Standards from Mathematical Practice	Transfer
<ul style="list-style-type: none"> 3.NBT.A.1. Round whole numbers to the nearest 10 or 100. 	MP 2 Reason abstractly and quantitatively.	Concept(s): <ul style="list-style-type: none"> Rounding leads to an approximation or estimate. Students are able to: <ul style="list-style-type: none"> use number lines and a hundreds charts to explain rounding numbers to the nearest 10 and 100. round a whole number to the nearest 10. round a whole number to the nearest 100. Learning Goal 8: Round whole numbers to the nearest 10 or 100.
<ul style="list-style-type: none"> 3.NBT.A.3. Multiply one-digit whole numbers by multiples of 10 in the range 10 to 90 (e.g., 9×80, 5×60) using strategies based on place value and properties of operations. 	MP 2 Reason abstractly and quantitatively.	Concept(s): <ul style="list-style-type: none"> Multiples of 10 can be represented as a specific number of groups of ten. Students are able to: <ul style="list-style-type: none"> multiply to determine the total number of groups of ten. multiply one-digit whole numbers by multiples of 10. Learning Goal 9: Multiply one digit whole numbers by multiples of 10 (10-90).

District/School Formative Assessment Plan	District/School Summative Assessment Plan
<ul style="list-style-type: none"> Teacher-Created Assessments Homework Classwork UDL's whiteboard activities IXL Problem of the Day Exit Ticket 	<ul style="list-style-type: none"> Chapter Tests Unit Tests EdConnect Assessments

Focus Mathematical Concepts

Vocabulary	Instruction and Pacing
Digits	Pretest
Family	Multiplying whole numbers
Addend	Multiplying one digit whole numbers by multiples of 10
Equation	Dividing whole numbers
Addends	Multiplying and dividing within 100 - word problems
Compare	
Round	
Greater Than	
Less Than	
Fact	
Sum	
Difference	
Factors	
Product	
Groups	
Multiplication	
Multiples	
Array	
Equal	
Division	
Sharing	
Equal Groups	
Order	
Solve	
Word Problem	

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Commutative Property of Multiplication Area Expression Columns Rows Determine Square centimeter Square Inch Square Foot Measurement	Finding unknown numbers in multiplication or division problems	1 week
	Area	3 weeks
	Rounding	1 week
ENDURING UNDERSTANDING		ESSENTIAL QUESTIONS
<ul style="list-style-type: none"> • There are various strategies that can be used to solve problems involving multiplication and division. • Place Value Strategies can be used to solve problems involving multi-digit arithmetic • Rounding is a process for finding multiples of 10 and 100. • Multiplication can be used to solve real world measurement problems involving area • Multiplication is repeated addition 	<ul style="list-style-type: none"> • How are addition and multiplication related? • How do I decide which strategy to use to solve problems? • How can rounding be used to estimate sums and differences? • When can finding area be valuable? 	
Differentiation and Accommodations		District/School Primary and Supplementary Resources
<ul style="list-style-type: none"> • Provide graphic organizers • Provide additional examples and opportunities for additional problems for repetition • Provide tutoring opportunities • Provide retesting opportunities after remediation (up to teacher and district discretion) • Teach for mastery not test • Teaching concepts in different modalities • Adjust pace and homework assignments 	<ul style="list-style-type: none"> • Go Math!! • IXL • Teacher created materials 	
Instructional Strategies		
Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson: <ul style="list-style-type: none"> • Communicating with students • Using questioning and discussion techniques • Engaging students in learning • Using assessment in instruction • Demonstrating Flexibility and Responsiveness 		

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Common Misconceptions	Proper Conceptions
Multiplication and division are unrelated	Division is an unknown factor problem
Area is the distance around a figure	Area is the space inside a figure
The number of units inside a figure must be counted individually	Multiplying the side lengths give you the same answer
Performance Task	

Your family has just developed 24 photos from your vacation. They want you to organize the photos into an arrangement of equal rows and columns for a family poster. Draw a plan that shows 2 different ways to organize your photos. Choose one of your plans and write the repeated addition equation, and the related multiplication equation. Explain how your drawing relates to multiplication.

Rubric

3 – Student will be able to demonstrate/draw two arrays to display the family photos into equal groups. (e.g. 4 rows of 6 and 8 rows of 3). Student will write a repeated addition equation for one of the arrays and the related multiplication equation. Student clearly explains their answer in a sentence, in a series of steps or labels their drawings and equations.

2 – Student will demonstrate/draw at least one correct array with the correct repeated addition sentence and related multiplication fact with some explanation.

1 – Student will demonstrate/draw one or two ways to organize photos into equal groups/arrays, excluding repeated addition or multiplication equations, or writes incorrect equations.

0 – Student shows little or no evidence of organizing photos

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Unit 2 Grade 3- Modeling multiplication, division, and fractions		
Content Standards	Suggested Standards for Mathematical Practice	Transfer
<p>■ 3.OA.A.3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. *(benchmarked)</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics.</p>	<p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> multiply to solve word problems involving arrays and measurement quantities (area). divide to solve word problems involving arrays and measurement quantities (area). represent a word problem with a drawing or array. represent a word problem with an equation. <p>Learning Goal 1: Use multiplication and division within 100 to solve word problems involving measurement quantities (area) using drawings.</p>
<p>■ 3.OA.B.5. Apply properties of operations as strategies to multiply and divide. <i>Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)</i> *[Students need not use the formal terms for these properties.] *[Limit to single digit factors and multipliers. $7 \times 4 \times 5$ would exceed grade 3 expectations because it would result in a two-digit multiplier (28×5)]</p> <p>■ 3.MD.C.7. Relate area to the operations of multiplication and addition.</p>	<p>MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Properties are rules about relationships between numbers. Changing the order of factors does not change the result of multiplication. Changing the order of numbers does change the result of division. Area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Area models can be used to represent the distributive property. <p>Students are able to:</p> <ul style="list-style-type: none"> multiply whole numbers using the commutative property as a strategy. multiply whole numbers using the associative property as a strategy. use tiling to show that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. multiply whole numbers using the distributive property as a strategy. <p>Learning Goal 2: Multiply one-digit whole numbers by applying the properties of operations (commutative, associative, and distributive properties). Learning Goal 3: Use tiling and an area model to represent the distributive property.</p>

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Unit 2 Grade 3- Modeling multiplication, division, and fractions		
Content Standards	Suggested Standards for Mathematical Practice	Transfer
3.MD.C.7c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.		
<p>■ 3.MD.C.7. Relate area to the operations of multiplication and addition.</p> <p>3.MD.C.7d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.</p>	<p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Areas of rectilinear figures can be determined by decomposing them into non-overlapping rectangles and adding the areas of the parts. <p>Students are able to:</p> <ul style="list-style-type: none"> decompose rectilinear figures into non-overlapping rectangles. find areas of non-overlapping rectangles and add to find the area of the rectilinear figure. solve real world problems involving area of rectilinear figures. <p>Learning Goal 4: Solve real-world problems involving finding areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts.</p>
<p>■ 3.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.</p> <p>*(benchmarked)</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> multiply and divide <u>within 40</u> with accuracy and efficiency. <p>Learning Goal 5: Fluently multiply and divide <u>within 40</u> using strategies such as the relationship between multiplication and division.</p>
<p>■ 3.OA.D.8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation</p>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4. Model with mathematics</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Letters or symbols in an equation represent an unknown quantity. <p>Students are able to:</p> <ul style="list-style-type: none"> represent the solution to two-step word problems with equations. use a symbol to represent an unknown in an equation. use rounding as an estimation strategy.

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Content Standards	Suggested Standards for Mathematical Practice	Transfer
strategies including rounding. *(benchmarked)	MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	<ul style="list-style-type: none"> explain, using an estimation strategy, whether an answer is reasonable. <p>Learning Goal 6: Write equations when solving two-step word problems, using a symbol for an unknown; find the value of an unknown in an equation involving any of the four operations and use estimation strategies to assess the reasonableness of answers.</p>
<p>■ 3.OA.D.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. <i>For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.</i></p>	MP.3 Construct viable arguments and critique the reasoning of others. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	<p>Concept(s):</p> <ul style="list-style-type: none"> Addition and multiplication tables reveal arithmetic patterns. Patterns may be related to whether a number is even or odd. Patterns exist in rows, columns and diagonals of addition tables and multiplication tables. Decomposing numbers into equal addends may reveal patterns. <p>Students are able to:</p> <ul style="list-style-type: none"> explain arithmetic patterns using properties of operations. <p>Learning Goal 7: Recognize arithmetic patterns, including patterns in addition or multiplication tables, and explain the patterns using properties of operations.</p>
<p>● 3.NBT.A.2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)</p>	MP 2 Reason abstractly and quantitatively.	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> add and subtract two 2-digit whole numbers <u>within 100</u> with accuracy and efficiency. <p>Learning Goal 8: Fluently add and subtract (with regrouping) two 2-digit whole numbers <u>within 100</u>.</p>
<p>■ 3.NF.A.1. Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$. *[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]</p> <p>▣ 3.G.A.2. Partition shapes into parts with equal areas. Express the area of</p>	MP 2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	<p>Concept(s):</p> <ul style="list-style-type: none"> Wholes, when partitioned into equal parts, contain parts representing a unit fraction and each part is the same size. Each part has the same name and represents a unit fraction (one-half, one-third, one-fourth, one-sixth, one-eighth). The denominator is the total number of parts in the whole. The numerator is the number of parts in a given fraction. Fraction $1/b$ is the quantity formed by 1 part when a whole is partitioned into b equal parts. Fraction a/b as the quantity formed by a parts of size $1/b$ (e.g. $10/2$ is 10 parts and each part is of size $1/2$).

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Unit 2 Grade 3- Modeling multiplication, division, and fractions

Content Standards	Suggested Standards for Mathematical Practice	Transfer
each part as a unit fraction of the whole. <i>For example, partition a shape into 4 parts having equal area and describe the area of each part as 1/4 of the area of the shape.</i>		<p>Students are able to:</p> <ul style="list-style-type: none"> partition rectangles, and other shapes, into halves, thirds, fourths, sixths and eighths. identify the fractional name of each part. model and explain that a fraction a/b is the quantity formed by a parts of size $1/b$ (For example, $10/2$ is 10 parts and each part is of size $1/2$). <p>Learning Goal 9: Partition shapes into parts with equal areas and express the area of each part as a unit fraction; interpret the unit fraction $1/b$ as the quantity formed by 1 of b equal parts of a whole and the fraction a/b as the quantity formed by a parts of size $1/b$.</p>

District/School Formative Assessment Plan	District/School Summative Assessment Plan
<ul style="list-style-type: none"> Teacher-Created Assessments Homework Classwork UDL's whiteboard activities IXL Problem of the Day Exit Ticket 	<ul style="list-style-type: none"> Chapter Tests Unit Tests EdConnect Assessments

Focus Mathematical Concepts

Vocabulary	Instruction and Pacing	
Multiples	Pretest	1 day
Multiplication	Multiplying and dividing within 100	2 weeks
Factor	Apply properties to multiply and divide	1 week
Quotient	Area	2 weeks
Division	Word problems using multiplying and dividing to solve	1 week
Dividend	patterns	1 week
Divide	Add and subtract within 1000	1 weeks
Fact Families	Understanding fractions and relating it to partitioning shapes	1 week
Factor		
Multiple		
Variable		
Multiplication		
Product		
Perimeter		
Area		
Length		
Width		
Measure		
Side		
Square Units		
Row		
Column		
Arrays		
Pattern		
Equation		
Column		
Rectilinear Figure		
Decompose		
Non-Overlapping		
Rectangle		
Square Centimeter		
Square Inches		
Square Foot		
Distributive /Commutative & Associative Properties of Multiplication		

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ENDURING UNDERSTANDING	ESSENTIAL QUESTIONS
<ul style="list-style-type: none"> • Multiplication and Division are related • Various strategies can be used to solve multiplication and division within 100 • Multiplication and or other strategies can be used to solve real world measurement problems involving area 	<ul style="list-style-type: none"> • Can you explain and/or demonstrate the relationship between Multiplication and Division? • What strategies can you use to multiply and divide within 100 with accuracy and proficiency? • Evaluate how many different ways can we use multiplication and division help us to solve measurement problems in real life situations
Differentiation and Accommodations	District/School Primary and Supplementary Resources
<ul style="list-style-type: none"> • Provide graphic organizers • Provide additional examples and opportunities for additional problems for repetition • Provide tutoring opportunities • Provide retesting opportunities after remediation (up to teacher and district discretion) • Teach for mastery not test • Teaching concepts in different modalities • Adjust pace and homework assignments 	<ul style="list-style-type: none"> • Go Math!! • IXL • Teacher created materials
Instructional Strategies	
<p>Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson:</p> <ul style="list-style-type: none"> • Communicating with students • Using questioning and discussion techniques • Engaging students in learning • Using assessment in instruction • Demonstrating Flexibility and Responsiveness 	
Common Misconceptions	Proper Conceptions
<ul style="list-style-type: none"> • Students confuse rows and columns in arrays • Students incorrectly draw arrays for the given groups • Students reverse the numbers when recording the number of rows and columns • Students number the groups rather than the number in each group • When relating addition to multiplication with repeated addition, students incorrectly record the multiplication sentence • For division as sharing students still see the array as a multiplication model • Students have difficulty relating division and multiplication • Students confuse Area and Perimeter • Students have difficulty finding area of irregular figures 	<ul style="list-style-type: none"> • Columns are up and down. Rows go across • Arrays are equal groups of rows and columns. Graph paper can help us to organize rows and columns. • The # of rows is the first number in the equations the # in each row is the second • Continually checking totals in groups help us to multiply using arrays or pictures • The first number in the equation is how many groups, the second is how many are in each group • Multiplication and Division are inverse operations. Different models, pictures

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<ul style="list-style-type: none"> • Number Sentences and Equations should only have numbers not letters 	<p>or groups of objects can be used to show equal groups</p> <ul style="list-style-type: none"> • Counters and pictures help to see the connection between multiplication and division • Perimeter and Area measure two different measurements of a figure and tell us two completely different pieces of information • Breaking models apart or dividing them into smaller parts helps us to find area of larger or irregular figures • Letters represent numbers in equations
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Performance Task

Bake Sale

You and your friends are making baked goods for a school bake sale to sell during lunch periods. The baking trays hold different amounts of baked items. You have the following trays to choose from for baking:

Baked Item	# of Trays	# In Each Tray
Blueberry Muffins	4	6
Strawberry Tarts	6	5
Granola Bars	8	4

1. Choose one baked item that you would like to bake for the bake sale and solve for the following.

- How many total baked items will you be baking
- Draw and label an array to show the total number of baked items in all.
- Write a multiplication equation for your array you drew above
- Write the related repeated addition equation for your array

2. The bake sale will be held during two lunch periods 12:00pm and 12:30 pm. You need to have an equal amount for each lunch period. Explain how you would divide the baked items into two equal groups for each lunch period you may redraw your array above or show it on your original array.

Rubric

3 -Student calculates the correct total of baked items, then draws the correct array and writes the multiplication and the related addition equation. Student correctly divides the original array into 2 equal groups or redraws the original array and splits the whole group of baked items into 2 equal groups and writes the correct division equation.

2 –Student draws the correct array and the related multiplication and multiplication equation with the correct total. Student divides the array into 2 equal groups correctly, but does not write the division equation.

1 - Student draws the correct array and writes either a multiplication or addition sentence.

0 - Student does not show evidence of an array or any arrangement of equal groups.

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Unit 3 Grade 3		
Content Standards	Suggested Standards for Mathematical Practice	Transfer
<p>■ 3.NF.A.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.</p> <p>3.NF.A.2a. Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.</p> <p>3.NF.A.2b. Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.</p> <p>*[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]</p>	<p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Fraction is a number and has its place on the number line. When placing unit fractions on a number line, the space between 0 and 1 is the whole and must be partitioned into equal parts. Each part of a whole has the same size (one-half, one-third, one-fourth, one-sixth or one-eighth). Parts of the whole that begin at 0 and ends at $1/b$ on the number line is the location of fraction $1/b$ (one-half, one-third, one-fourth, one-sixth, or one-eighth). <p>Students are able to:</p> <ul style="list-style-type: none"> partition a number line into parts of equal sizes between 0 and 1 (halves, thirds, fourths sixths and eighths). plot unit fractions on the number line. identify multiple parts (of length $1/b$) on the number line. plot a fraction on the number line by marking off multiple parts of size $1/b$. plot fractions equivalent to whole numbers including 0 and up to 5. <p>Learning Goal 1: Draw a number line depicting the position of $1/b$ (with $b = 2, 3, 4, 6, \text{ or } 8$); represent the unit fraction $1/4$ on the number line by partitioning the number line between 0 and 1 into 4 equal lengths and name the point at the end of the first length as the position of the unit fraction $1/4$; apply the same method for placing points $1/2, 1/3, 1/6, \text{ and } 1/8$ on the number line.</p> <p>Learning Goal 2: Draw a number line depicting the position of fraction a/b (with $b = 2, 4, 3, 6, \text{ or } 8$, and including whole numbers up to 5).</p>
<p>■ 3.NF.A.3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size</p> <p>3.NF.A.3a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.</p> <p>3.NF.A.3b. Recognize and generate simple equivalent</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Comparing fractions, each referencing the same <i>whole</i>. Fractions are equivalent if they are the same size. Fractions are equivalent if they are at the same point on a number line. <p>Students are able to:</p> <ul style="list-style-type: none"> find equivalent fractions (limited to fractions with denominators 2, 3, 4, 6, and 8). explain why two fractions are equivalent; use a visual fraction model to support explanation. write whole numbers as fractions. identify fractions that are equivalent to whole numbers. compare two fractions having the same numerator by reasoning about their size.

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Unit 3 Grade 3		
Content Standards	Suggested Standards for Mathematical Practice	Transfer
<p>fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$). Explain why the fractions are equivalent, e.g., by using a visual fraction model.</p> <p>3.NF.A.3c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. <i>Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.</i></p> <p>3.NF.A.3d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.</p> <p><i>*[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]</i></p>		<ul style="list-style-type: none"> compare two fractions having the same denominator by reasoning about their size. explain why comparing fractions that do not have the same whole is not valid (reason about their size and support reasoning with a model). use $<$, $=$, and $>$ symbols to write comparisons of fractions and justify conclusions with a visual fraction model. <p>Learning Goal 3: Generate simple equivalent fractions, explain why they are equivalent, and support the explanation with visual fraction models; locate them on the number line.</p> <p>Learning Goal 4: Express whole numbers as fractions, identify fractions equivalent to whole numbers and locate them on the number line.</p> <p>Learning Goal 5: Compare two fractions having the same numerator; compare two fractions having the same denominator; reason about their size and use the symbols $>$, $=$, or $<$ to record the comparison.</p>
<p>■ 3.MD.A.1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes. (e.g., by representing the problem on a number line</p>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Analog clocks represent hours as numbers and minutes are represented as tick marks. <p>Students are able to:</p> <ul style="list-style-type: none"> tell time to the nearest minute using digital and analog clocks. write time to the nearest minute using analog clocks. choose appropriate strategies to solve real world problems involving time.

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Unit 3 Grade 3		
Content Standards	Suggested Standards for Mathematical Practice	Transfer
diagram)		<ul style="list-style-type: none"> use the number line as a visual model to determine intervals of time as <i>jumps</i> on a number line. measure time intervals. <p>Learning Goal 6: Tell and write time to the nearest minute, and solve word problems with addition and subtraction involving time intervals in minutes.</p>
<p>■ 3.MD.A.2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units.</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Mass may be measured in grams and kilograms. Mass is measured by weighing. Volume may be measured in liters. Volume may be measured with instruments such as beakers. <p>Students are able to:</p> <ul style="list-style-type: none"> measure and read a scale to estimate volume. measure and read a scale to estimate mass. add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes. <p>Learning Goal 7: Solve one step word problems by estimating and measuring volume and mass using appropriate tools and standard units of grams, kilograms, and liters.</p>
<p>□ 3.G.A.1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals.</p>	<p>MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Shapes in different categories share attributes. Quadrilaterals are closed figures with four sides. Rhombuses, rectangles, etc, and other quadrilaterals share attributes. <p>Students are able to:</p> <ul style="list-style-type: none"> classify and sort shapes by attributes. explain why rhombuses, rectangles, and squares are examples of quadrilaterals. draw examples of quadrilaterals. <p>Learning Goal 9: Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.</p>
<p>● 3.MD.D.8. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Perimeter of a figure is equivalent to the sum of the length of all of the sides. Rectangles that have same perimeter can have different areas. Rectangles that have same area can have different perimeters. <p>Students are able to:</p>

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Unit 3 Grade 3						
Content Standards		Suggested Standards for Mathematical Practice		Transfer		
side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.		MP.5 Use appropriate tools strategically.		<ul style="list-style-type: none"> determine the perimeter of various plane shapes and irregular shapes given the side lengths. determine the unknown side length give the perimeter and other sides. show rectangles having the same perimeter and different areas. show rectangles having different perimeters and the same area. <p>Learning Goal 10: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.</p>		
<p>■ 3.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>		<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> multiply and divide <u>within 100</u> with accuracy and efficiency. <p>Learning Goal 8: Fluently multiply and divide <u>within 100</u> using strategies such as the relationship between multiplication and division.</p>			
District/School Formative Assessment Plan			District/School Summative Assessment Plan			
<ul style="list-style-type: none"> Teacher-Created Assessments Homework Classwork UDL's whiteboard activities IXL Problem of the Day Exit Ticket 			<ul style="list-style-type: none"> Chapter Tests Unit Tests EdConnect Assessments 			
Focus Mathematical Concepts						
Vocabulary			Instruction and Pacing			
Fractions	Numerator	Denominator	Unit Fraction	Mixed	Pretest	1 day
					Fractions on a number line	2 weeks

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Number Greater Than Less Than Equal to Organize Square Units Perimeter Side Area Length Width Measure Factor Multiple Product Multiplication Division Divisor Dividend Fact Family Equivalent Halves Thirds Fourths Fifths Sixths Eighths Tenths AM PM elapsed time analog clock digital clock Equal part hour half hour quarter hour minute seconds	Comparing fractions	1 week
	Tell and write time	1 week
	Volume	1 week
	Shapes	1 week
	Perimeter and area	2 weeks
	Multiply and divide within 100	1 week
ENDURING UNDERSTANDING		ESSENTIAL QUESTIONS
<ul style="list-style-type: none"> Number Lines, Unit Fractions, Partitioned Shapes, Parts of a Set are several ways to solve problems involving fractions and mixed numbers. Perimeter and Area are related and there are different strategies and formulas to finding them. (counting square units, adding up the sides, LXW) 	<ul style="list-style-type: none"> Can we use fraction models and or number lines to help us solve real world problems involving fractions? How can we apply a variety of mathematical procedures and formulas to finding Area and Perimeter? How can multiplication and division be used to solve problems involving measurement and fractions? 	
Differentiation and Accommodations	District/School Primary and Supplementary Resources	
<ul style="list-style-type: none"> Provide graphic organizers Provide additional examples and opportunities for additional problems for repetition Provide tutoring opportunities Provide retesting opportunities after remediation (up to teacher and district discretion) Teach for mastery not test Teaching concepts in different modalities Adjust pace and homework assignments 	<ul style="list-style-type: none"> Go Math!! IXL Teacher created materials 	
Instructional Strategies		
Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson: <ul style="list-style-type: none"> Communicating with students Using questioning and discussion techniques Engaging students in learning Using assessment in instruction Demonstrating Flexibility and Responsiveness 		

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Common Misconceptions	Proper Conceptions
Segmenting shapes and pictures can show compare fractions	Depending on the size of the drawings, comparing may not be accurate
The larger the denominator the larger the fraction.	A large denominator indicates smaller parts
Fractions are not numbers	Proper fractions are numbers representing values less than one.
If denominators are even they are equivalent fractions	Equivalent fractions can be found using number lines
Students confuse the greater and less than sign when comparing fractions	The same rules apply with the greater and less than sign when comparing
Students will incorrectly divide shapes into equal parts	fractions as whole numbers.
Difficulty with the transition of using fraction symbols and meanings	Using number lines and graph paper provide visual fractions
Fractions are smaller numbers	Numerators are parts of the whole which is the denominator
A fraction is not a number	A fraction is relative to the size of the whole
Larger Denominators are Larger Fractions	Fractions are values of a whole or values less than one
Students incorrectly estimate fraction equivalents or values	Numerators are parts of the whole which is the denominator
Students have difficulty writing fractions on a number line	Benchmark Fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ help us to estimate fractions
Students incorrectly calculate or count minutes of time	Begin segmenting number lines in half or fourths
Students confuse the hour and minute hand	Time is counted/measured in units of five
Students incorrectly count the minutes	Longer hand is the minute hand the shorter hand is the hour hand
Students have difficulty telling time two different ways	Count by 5's and then ones (if needed)to count minutes
Students have difficulty calculating elapsed time	Time can be measured minutes before the hour or after the previous hour
	Using tools (clock face or number line) help to calculate elapsed time

Performance Task

Hershey Fractions

Description: Students will use a Hershey Chocolate Bar to reinforce fractional concepts in real life situations.

HERSEY BAR FRACTIONS

HERSHEY	HERSHEY	HERSHEY	HERSHEY
HERSHEY	HERSHEY	HERSHEY	HERSHEY
HERSHEY	HERSHEY	HERSHEY	HERSHEY
HERSHEY	HERSHEY	HERSHEY	HERSHEY

How many rows are in this Hershey Bar ?

How many columns are in this Hershey Bar ?

Write an addition and multiplication equation you see using the above information.

Shade 4 of the pieces of chocolate bar that you will share with a friend. What fraction do you see?

Shade 4 more pieces of the chocolate bar to share. What is your fraction now?

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Look at the chocolate bar and estimate how much of the chocolate bar you have left, and explain your answer.

About $\frac{1}{4}$ $\frac{1}{2}$ or $\frac{3}{4}$?

Rubric

- 3 – Student counts the correct number of rows and columns and also writes the correct multiplication and repeated addition equation. The student shades 4 parts of the Hershey Bar $\frac{4}{16}$ and writes the correct fraction and 8 parts $\frac{8}{16}$. Student estimates $\frac{8}{16}$ to $\frac{1}{2}$ of the candy bar is eaten and explains how they derived at their answer.
- 2 – Student discovers the correct amount of rows and columns and writes at least one correct addition/multiplication equation. And shades and identifies at least one of the fractional parts ($\frac{4}{16}$ or $\frac{8}{16}$). Student identifies $\frac{8}{16}$ as $\frac{1}{2}$ but may not have a clear explanation.
- 1 – Student has correctly identifies rows & colums and has at least one of the correct equations. Student correctly shades and identifies atleast one of the shaded parts correctly. Student incorrectly identifies $\frac{8}{16}$ as $\frac{1}{2}$ and does not explain their answer.
- 0 – Student does not show a clear understanding of any of the mathematical tasks.

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Unit 4 Grade 3		
Content Standards	Suggested Standards for Mathematical Practice	Transfer
<p>▣ 3.MD.B.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</i></p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Graphs organize information and contain labels. Pictures and bars can represent numbers in graphs. Different graphs may display different scales. <p>Students are able to:</p> <ul style="list-style-type: none"> draw scaled picture graphs. draw scaled bar graphs. analyze, interpret and create bar graphs and pictographs in real world situations. solve “how many more” and “how many less” problems using scaled bar graphs. <p>Learning Goal 1: Draw scaled picture and scaled bar graphs to represent data with several categories. Solve one and two-step word problems using scaled bar graphs.</p>
<p>▣ 3.MD.B.4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.</p>	<p>MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Show measurements on a line plot displays the information in an organized way <p>Students are able to:</p> <ul style="list-style-type: none"> measure length using rulers marked with inch, quarter inch and half inch generate measurement data by measuring length and create a line plot of the data accurately measure several small objects using a standard ruler and display findings on a line plot display data on line plots with horizontal scales in whole numbers, halves, and quarters <p>Learning Goal 2: Depict data measured in fourths and halves of an inch with a line plot with scales marked with appropriate units</p>
<p>■ 3.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)</p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> multiply and divide <u>within 100</u> with accuracy and efficiency. <p>Learning Goal 3: Fluently multiply and divide <u>within 100</u> using strategies such as the relationship between multiplication and division.</p>
<p>■ 3.OA.D.8. Solve two-step word problems using the four operations. Represent these</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> A letter or variable in an equation represents an unknown quantity. <p>Students are able to:</p>

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Unit 4 Grade 3		
Content Standards	Suggested Standards for Mathematical Practice	Transfer
problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *(benchmarked)	quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	<ul style="list-style-type: none"> represent two-step word problems with equation(s) containing unknowns. perform operations in the conventional order (no parentheses). use rounding as an estimation strategy. explain, using an estimation strategy, whether an answer is reasonable. <p>Learning Goal 4: Write equation(s) containing an unknown and find the value of an unknown in an equation that is a representation of a two-step word problem (with any four operations); use estimation strategies to assess the reasonableness of answers.</p>
● 3.NBT.A.2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)	MP.2 Reason abstractly and quantitatively.	<p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> add and subtract <u>within 1000</u> with accuracy and efficiency. <p>Learning Goal 5: Fluently add and subtract <u>within 1000</u> using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</p>
■ 3.MD.C.7. Relate area to the operations of multiplication and addition. 3.MD.C.7d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. *(benchmarked)	MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	<p>Concept(s):</p> <ul style="list-style-type: none"> Areas of rectilinear figures can be determined decomposing the them into non-overlapping rectangles and adding the areas of the parts. <p>Students are able to:</p> <ul style="list-style-type: none"> decompose rectilinear figures into non-overlapping rectangles. find areas of non-overlapping rectangles and add to find the area of the rectilinear figure. solve real world problems involving area of rectilinear figures. <p>Learning Goal 6: Solve real world problems involving finding areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts.</p>
District/School Formative Assessment Plan		District/School Summative Assessment Plan
<ul style="list-style-type: none"> Teacher-Created Assessments Homework Classwork UDL's whiteboard activities 		<ul style="list-style-type: none"> Chapter Tests Unit Tests EdConnect Assessments

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<ul style="list-style-type: none"> IXL Problem of the Day Exit Ticket 		
Focus Mathematical Concepts		
Vocabulary	Instruction and Pacing	
Picture graphs Bar graphs Line plot Halves Quarters Whole numbers Measurement data Variable Place value Area Decompose Rectilinear	Pretest	1 day
	Picture graphs	1 week
	Bar graphs	1 week
	Using rulers to measure lengths	1 week
	Line plots	1 week
	Multiply and divide within 100	1 week
	Word problems	1 week
	Add and subtract within 1000	1 week
	Area with rectilinear figures	2 weeks
	ENDURING UNDERSTANDING	
<ul style="list-style-type: none"> Data is part of everyday life. Being able to use tools (ie rulers) is a lifelong skill Fluently adding, subtracting, multiplying, and dividing is a lifelong skill 		<ul style="list-style-type: none"> Why should data be put into an organized format? What types of handheld tools will help me in real life?
Differentiation and Accommodations		District/School Primary and Supplementary Resources
<ul style="list-style-type: none"> Provide graphic organizers Provide additional examples and opportunities for additional problems for repetition Provide tutoring opportunities Provide retesting opportunities after remediation (up to teacher and district discretion) Teach for mastery not test Teaching concepts in different modalities Adjust pace and homework assignments 		<ul style="list-style-type: none"> Go Math!! IXL Teacher created materials
Instructional Strategies		
<p>Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson:</p> <ul style="list-style-type: none"> Communicating with students 		

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<ul style="list-style-type: none"> • Using questioning and discussion techniques • Engaging students in learning • Using assessment in instruction • Demonstrating Flexibility and Responsiveness 	
Common Misconceptions	Proper Conceptions
Each picture on a picture graph represents one item	Each picture could represent more than one item, depending on the scale
Performance Task	

Students will be given a group of 10-15 not-so-new crayons and a ruler marked every ¼ inch; students will measure each crayon to the closest ¼ inch and create a line plot representing the data.

- Rubric: Students will receive 25 points for each correctly completed bullet
- measure length using rulers marked with inch, quarter inch and half inch – create an organized list
 - generate measurement data by measuring length and create a line plot of the data
 - accurately measure several small objects using a standard ruler and display findings on a line plot
 - display data on line plots with horizontal scales in whole numbers, halves, and quarters