

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>Unit 1:</p> <p><i>Suggested Open Educational Resources</i></p>	<p>3.OA.A.2 Fish Tanks</p> <p>3.OA.A.3 Analyzing Word Problems Involving Multiplication</p> <p>3.OA.A.4 Finding the unknown in a division equation</p> <p>3.MD.C.6 Finding the Area of Polygons</p> <p>3.MD.C.7a India's Bathroom Tiles</p> <p>3.NBT.A.1 Rounding to 50 or 500</p> <p>3.NBT.A.1 Rounding to the Nearest Ten and Hundred</p> <p>3.NBT.A.3 How Many Colored Pencils?</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>Unit 2</p> <p>Modeling</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* 	<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 	

Multiplication, Division and Fractions	<ul style="list-style-type: none"> ● 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"> ● 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.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>
Unit 2: Suggested Open Educational Resources	<p>3.OA.A.3 Two Interpretations of Division</p> <p>3.OA.B.5 Valid Equalities? (Part 2)</p> <p>3.MD.C.7c Introducing the Distributive Property</p> <p>3.OA.C.7 Kiri's Multiplication Matching Game</p> <p>3.OA.D.8 The Class Trip</p> <p>3.OA.D.9 Addition Patterns</p> <p>3.NF.A.1 Naming the Whole for a Fraction</p> <p>3.G.A.2 Representing Half of a Circle</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>
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>
Unit 3: Suggested Open Educational Resources	<p>3.NF.A.2 Closest to 1/2</p> <p>3.NF.A.2 Find 1 Starting from 5/3</p>		

	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.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p>
<p>Unit 4</p> <p>Representing Data</p>	<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.4 Model with mathematics.</p>
<p>Unit 4:</p> <p><i>Suggested Open Educational Resources</i></p>	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.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>21st Century Life and Careers Career Awareness, Exploration, and Preparation</p>	<p>9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.</p>
<p>CRP Standards</p>	<p>CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP6. Demonstrate creativity and innovation. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence</p>
<p>ELA Standards</p>	<p>RI.3.1. Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. RI.3.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area. RI.3.7. Use information gained from text features (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur). W.3.5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. SL.3.2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p>
<p>Technology Standards</p>	<p>8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems 8.1.5.C.1 Engage in online discussions with learners of other cultures to investigate a worldwide issue from multiple perspectives and sources, evaluate findings and present possible solutions, using digital tools and online resources for all steps. 8.1.5.D.3 Demonstrate an understanding of the need to practice cyber safety, cyber security, and cyber ethics when using technologies and social media. 8.1.5.E.1 Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.</p>

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.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>MP 2 Reason abstractly and quantitatively.</p> <p>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>
<ul style="list-style-type: none"> 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>MP 2 Reason abstractly and quantitatively.</p> <p>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

		<p>number of groups when objects are divided equally.</p> <ul style="list-style-type: none"> ● 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>
<ul style="list-style-type: none"> ● 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>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>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>
<ul style="list-style-type: none"> ● 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>MP.2 Reason abstractly and quantitatively.</p> <p>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 ($4 \times _ = 20$ 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.

		Learning Goal 4: Determine the unknown in a division or multiplication equation relating 3 whole numbers (within 100).
<ul style="list-style-type: none"> 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>MP.3 Construct viable arguments and critique the reasoning of others.</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"> 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>
<ul style="list-style-type: none"> 3.MD.C.5. Recognize area as an attribute of plane figures and understand concepts of area measurement. <ul style="list-style-type: none"> 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. 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. 3.MD.C.6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units). 	<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 (cm^2, m^2, in^2, ft^2, and improvised units).</p>
<ul style="list-style-type: none"> 3.MD.C.7. Relate area to the operations of multiplication and 	<p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p>

<p>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.5 Use appropriate tools strategically.</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>
<ul style="list-style-type: none"> • 3.NBT.A.1. Round whole numbers to the nearest 10 or 100. 	<p>MP 2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Rounding leads to an approximation or estimate. <p>Students are able to:</p> <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. <p>Learning Goal 8: Round whole numbers to the nearest 10 or 100.</p>
<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. 	<p>MP 2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Multiples of 10 can be represented as a specific number of groups of ten. <p>Students are able to:</p> <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 Compare Round Greater Than Less Than Fact Family Sum Difference Factors Product Groups	Pretest 1 day
Addend Multiplication Multiples Array Equal	Multiplying whole numbers 1 week
Equation Division Sharing Equal Groups	Multiplying one digit whole numbers by multiples of 10 1 week
Addends Order Solve Word Problem	Dividing whole numbers 1 week
Commutative Property of Multiplication Area	Multiplying and dividing within 100 - word problems 1 week
Expression Columns Rows Determine	Finding unknown numbers in multiplication or division problems 1 week
Square centimeter Square Inch Square Foot Measurement	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. 	<ul style="list-style-type: none"> • How are addition and multiplication related? • How do I decide which strategy to use to solve problems?
--	--

<ul style="list-style-type: none"> 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 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	
<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
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

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

Content Standards	Suggested Standards for Mathematical Practice	Transfer
<ul style="list-style-type: none"> 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>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>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>
<ul style="list-style-type: none"> 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> <p>Students need not use the formal terms for these properties.]</p> <p>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>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"> 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</p>

<ul style="list-style-type: none"> 3.MD.C.7. Relate area to the operations of multiplication and addition. <ul style="list-style-type: none"> 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>operations (commutative, associative, and distributive properties).</p> <p>Learning Goal 3: Use tiling and an area model to represent the distributive property.</p>
<ul style="list-style-type: none"> 3.MD.C.7. Relate area to the operations of multiplication and addition. <ul style="list-style-type: none"> 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>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>

<ul style="list-style-type: none"> 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>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>
<ul style="list-style-type: none"> 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 strategies including rounding. *(benchmarked) 	<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>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</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. 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>
<ul style="list-style-type: none"> 3.OA.D.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. <i>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.</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>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.

		Learning Goal 7: Recognize arithmetic patterns, including patterns in addition or multiplication tables, and explain the patterns using properties of operations.
<ul style="list-style-type: none"> 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</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>
<ul style="list-style-type: none"> 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 $1/b$. <p>Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]</p> <ul style="list-style-type: none"> 3.G.A.2. Partition shapes into parts with equal areas. Express the area of 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> 	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 $1/2$). <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</p>

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 $1/b$.

District/School Formative Assessment Plan

- Teacher-Created Assessments
- Homework
- Classwork
- UDL's
- whiteboard activities
- IXL
- Problem of the Day
- Exit Ticket

District/School Summative Assessment Plan

- Chapter Tests
- Unit Tests
- EdConnect Assessments

Focus Mathematical Concepts

Vocabulary

Multiples Multiplication Factor Quotient Division
 Dividend Divide Fact Families 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

Instruction and Pacing

Pretest	1 day
Multiplying and dividing within 100	2 weeks
Apply properties to multiply and divide	1 week
Area	2 weeks
Word problems using multiplying and dividing to solve	1 week
patterns	1 week
Add and subtract within 1000	1 weeks
Understanding fractions and relating it to partitioning shapes	1 week

ENDURING UNDERSTANDING

- 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

ESSENTIAL QUESTIONS

- 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

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:

- 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 ● Number Sentences and Equations should only have numbers not letters 	<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 or groups of objects can be used to show equal groups ● 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

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:

<u>Baked Item</u>	<u># of Trays</u>	<u># In Each Tray</u>
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.

Unit 3 Grade 3

Content Standards	Suggested Standards for Mathematical Practice	Transfer
<ul style="list-style-type: none"> 3.NF.A.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram. <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><i>*[Grade 3 expectations in this domain are limited to fractions with</i></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 $b = 2, 3, 4, 6,$ 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 $1/2, 1/3, 1/6,$ and $1/8$ on the number line.</p> <p>Learning Goal 2: Draw a number line depicting the position of fraction a/b (with $b = 2, 4, 3, 6,$ or $8,$ and including whole numbers up to 5).</p>

denominators 2, 3, 4, 6, and 8.]		
<ul style="list-style-type: none"> 3.NF.A.3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size <ul style="list-style-type: none"> 3.NF.A.3a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. 3.NF.A.3b. Recognize and generate simple equivalent 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. 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> 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 	<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. 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>visual fraction model. *[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]</p>		
<ul style="list-style-type: none"> 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 diagram) 	<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. 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>
<ul style="list-style-type: none"> 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>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>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>

<ul style="list-style-type: none"> 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>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"> 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>
<ul style="list-style-type: none"> 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 side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. 	<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"> 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> <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>
<ul style="list-style-type: none"> 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 	<p>MP 2 Reason abstractly and quantitatively.</p> <p>MP.7 Look for and make use of structure.</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>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.8 Look for and express regularity in repeated reasoning.</p>	<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	Pretest	1 day
Number	Fractions on a number line	2 weeks
Square Units	Comparing fractions	1 week
Area	Tell and write time	1 week
Multiple	Volume	1 week
Dividend	Shapes	1 week
Fact Family	Perimeter and area	2 weeks
Tenths	Multiply and divide within 100	1 week
Equal part		
AM	ESSENTIAL QUESTIONS	
PM	<ul style="list-style-type: none"> • Can we use fraction models and or number lines to help us solve real world problems involving fractions? 	
elapsed time	<ul style="list-style-type: none"> • How can we apply a variety of mathematical procedures and formulas to finding Area and Perimeter? 	
quarter hour	<ul style="list-style-type: none"> • How can multiplication and division be used to solve problems involving measurement 	
minute	ENDURING UNDERSTANDING	
seconds	<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. 	
	<ul style="list-style-type: none"> • Perimeter and Area are related and there are different strategies and formulas to finding them. (counting square units, adding up the sides, LXW) 	

	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																
<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															
<table border="1"> <tr><td>Segmenting shapes and pictures can show compare fractions</td></tr> <tr><td>The larger the denominator the larger the fraction.</td></tr> <tr><td>Fractions are not numbers</td></tr> <tr><td>If denominators are even they are equivalent fractions</td></tr> <tr><td>Students confuse the greater and less than sign when comparing fractions</td></tr> </table>	Segmenting shapes and pictures can show compare fractions	The larger the denominator the larger the fraction.	Fractions are not numbers	If denominators are even they are equivalent fractions	Students confuse the greater and less than sign when comparing fractions	<table border="1"> <tr><td>Depending on the size of the drawings, comparing may not be accurate</td></tr> <tr><td>A large denominator indicates smaller parts</td></tr> <tr><td>Proper fractions are numbers representing values less than one.</td></tr> <tr><td>Equivalent fractions can be found using number lines</td></tr> <tr><td>The same rules apply with the greater and less than sign when comparing fractions as whole numbers.</td></tr> </table>	Depending on the size of the drawings, comparing may not be accurate	A large denominator indicates smaller parts	Proper fractions are numbers representing values less than one.	Equivalent fractions can be found using number lines	The same rules apply with the greater and less than sign when comparing fractions as whole numbers.					
Segmenting shapes and pictures can show compare fractions																
The larger the denominator the larger the fraction.																
Fractions are not numbers																
If denominators are even they are equivalent fractions																
Students confuse the greater and less than sign when comparing fractions																
Depending on the size of the drawings, comparing may not be accurate																
A large denominator indicates smaller parts																
Proper fractions are numbers representing values less than one.																
Equivalent fractions can be found using number lines																
The same rules apply with the greater and less than sign when comparing fractions as whole numbers.																
<table border="1"> <tr><td>Students will incorrectly divide shapes into equal parts</td></tr> <tr><td>Difficulty with the transition of using fraction symbols and meanings</td></tr> <tr><td>Fractions are smaller numbers</td></tr> <tr><td>A fraction is not a number</td></tr> <tr><td>Larger Denominators are Larger Fractions</td></tr> <tr><td>Students incorrectly estimate fraction equivalents or values</td></tr> <tr><td>Students have difficulty writing fractions on a number line</td></tr> <tr><td>Students incorrectly calculate or count minutes of time</td></tr> </table>	Students will incorrectly divide shapes into equal parts	Difficulty with the transition of using fraction symbols and meanings	Fractions are smaller numbers	A fraction is not a number	Larger Denominators are Larger Fractions	Students incorrectly estimate fraction equivalents or values	Students have difficulty writing fractions on a number line	Students incorrectly calculate or count minutes of time	<table border="1"> <tr><td>Using number lines and graph paper provide visual fractions</td></tr> <tr><td>Numerators are parts of the whole which is the denominator</td></tr> <tr><td>A fraction is relative to the size of the whole</td></tr> <tr><td>Fractions are values of a whole or values less than one</td></tr> <tr><td>Numerators are parts of the whole which is the denominator</td></tr> <tr><td>Benchmark Fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ help us to estimate fractions</td></tr> <tr><td>Begin segmenting number lines in half or fourths</td></tr> </table>	Using number lines and graph paper provide visual fractions	Numerators are parts of the whole which is the denominator	A fraction is relative to the size of the whole	Fractions are values of a whole or values less than one	Numerators are parts of the whole which is the denominator	Benchmark Fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ help us to estimate fractions	Begin segmenting number lines in half or fourths
Students will incorrectly divide shapes into equal parts																
Difficulty with the transition of using fraction symbols and meanings																
Fractions are smaller numbers																
A fraction is not a number																
Larger Denominators are Larger Fractions																
Students incorrectly estimate fraction equivalents or values																
Students have difficulty writing fractions on a number line																
Students incorrectly calculate or count minutes of time																
Using number lines and graph paper provide visual fractions																
Numerators are parts of the whole which is the denominator																
A fraction is relative to the size of the whole																
Fractions are values of a whole or values less than one																
Numerators are parts of the whole which is the denominator																
Benchmark Fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ help us to estimate fractions																
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?

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 & cols 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.

Unit 4 Grade 3		
Content Standards	Suggested Standards for Mathematical Practice	Transfer
<ul style="list-style-type: none"> 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>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>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>
<ul style="list-style-type: none"> 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>MP.2 Reason abstractly and quantitatively.</p> <p>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

		<p>quarters</p> <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>
<ul style="list-style-type: none"> 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>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 3: Fluently multiply and divide <u>within 100</u> using strategies such as the relationship between multiplication and division.</p>
<ul style="list-style-type: none"> 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 strategies including rounding. *(benchmarked) 	<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>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</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> <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>
<ul style="list-style-type: none"> 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>	<p>Concept(s): No new concept(s) introduced</p> <p>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</p>

		on place value, properties of operations, and/or the relationship between addition and subtraction.
<ul style="list-style-type: none"> 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) 	<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 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 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	
Picture graphs		Pretest	1 day
Bar graphs		Picture graphs	1 week

Line plot	Bar graphs	1 week
Halves	Using rulers to measure lengths	1 week
Quarters	Line plots	1 week
Whole numbers	Multiply and divide within 100	1 week
Measurement data	Word problems	1 week
Variable	Add and subtract within 1000	1 week
Place value		2 weeks
Area	Area with rectilinear figures	
Decompose		
Rectilinear		
ENDURING UNDERSTANDING		ESSENTIAL QUESTIONS
<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 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 $\frac{1}{4}$ inch; students will measure each crayon to the closest $\frac{1}{4}$ 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