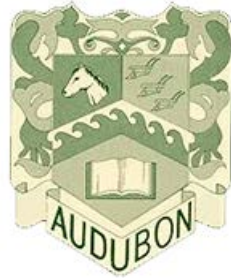


Audubon Public Schools



Grade 3: Math
Curriculum Guide

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Course Description

Grade 3: Math

In third grade, students refine their understanding of the base ten system and use place value concepts of ones, tens, hundreds, and thousands to understand number relationships. They become fluent in writing and renaming numbers in a variety of ways. Students show a variety of ways to add and subtract multi-digit numbers. Students will focus on what it means to multiply and divide as they become fluent in one digit multiplication and division. Students will tell time on different types of clocks, as well as find the elapsed time. Students make predictions and answer questions about data as they apply their growing understanding of numbers and the operations of addition, subtraction, multiplication and division. Students will focus on what a fraction is and the various ways to model a fraction. They will use manipulatives to find equivalent fractions and to compare fractions using greater than, less than and equal to. Students understand the process of measuring length and progress from measuring with objects such as toothpicks and craft sticks to the more practical skill of measuring length with standard units and tools.

Overview / Progressions

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p style="text-align: center;">Unit 1 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>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p>
<p style="text-align: center;">Unit 2 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* 	<ul style="list-style-type: none"> ● Represent and solve problems involving multiplication and division ● Understand properties of multiplication and the 	<p>MP.4 Model with mathematics.</p>

	<ul style="list-style-type: none"> ● 3.OA.D.9 ● 3.NBT.A.2* ● 3.NF.A.1 ● 3.G.A.2 	<p>relationship between multiplication and division</p> <ul style="list-style-type: none"> ● 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>
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 	<ul style="list-style-type: none"> ● Develop understanding of fractions as numbers ● Solve problems involving measurement and estimation 	

	<ul style="list-style-type: none"> ● 3.G.A.1 ● 3.MD.D.8 ● 3.OA.C.7* 	<p>of intervals of time, liquid volumes, and masses of objects</p> <ul style="list-style-type: none"> ● 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 	
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 	

Subject: Math	Grade: 3	Unit: 1 Multiplication, Division and Concepts of Area	1st Trimester (use pacing guide for specific dates)
Content Standard	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	
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 .	MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics.	<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. 	

		<ul style="list-style-type: none"> • 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.</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 number of groups when objects are divided equally. <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.

		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.
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)	MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics.	<p>Concept(s):</p> <p>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>
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	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	<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.

<p>each of the equations $8 \times ? = 48$, $5 = \div 3$, $6 \times 6 = ?$.</p>		<ul style="list-style-type: none"> • 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.</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"> • 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.

		Learning Goal 4: Determine the unknown in a division or multiplication equation relating 3 whole numbers (within 100).
3.MD.C.5. Recognize area as an attribute of plane figures and understand concepts of area measurement.	MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	<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>
3.MD.C.7. Relate area to the operations of multiplication and addition. 3.MD.C.7a. Find the area of a rectangle with whole-number	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically	<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>side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. 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>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>
<p>3.NBT.A.1. Round whole numbers to the nearest 10 or 100.</p>	<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>

<p>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>	<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. <p>Learning Goal 9: Multiply one digit whole numbers by multiples of 10 (10-90).</p>
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<p style="text-align: center;">Formative Assessments</p>	<p style="text-align: center;">Summative Assessments</p>
<ul style="list-style-type: none"> • Quick Writing • Whiteboard work/Slatework • Exit tickets • Entrance Tickets • Checks for Understanding • Quizzes • Small group activities • Pre-Assessment • Teacher’s observation • Kahoot • Quizlet 	<ul style="list-style-type: none"> • Test • Common Assessment • Post Unit Assessment • Benchmark Assessment
<p style="text-align: center;">Suggested Primary Resources</p>	<p style="text-align: center;">Suggested Supplemental Resources</p>

MyMath	IXL. com - Activities E-M; N - 1, 2, 5, 6, 7, 8, 9, 10; O- 1, 3, 4, 5; P- 10, 11; Q-6; S- 10, 11; Reflex Math Engage NY - Module 1, 3, 7 (topic A) Anchor Charts Games Reflex Math
Cross-Curricular Connections & 21st Century Skills	
<ul style="list-style-type: none"> ● Open ended math problems using language from ELA ● Math Read Alouds ● Youtube Videos 	
Essential Questions	Enduring Understanding
<ul style="list-style-type: none"> ● What the ways I can solve a multiplication problem? ● How can I find the answer to a multiplication problem? ● What are the properties of multiplication? ● How can I solve division problems? ● How can multiplication help me to divide? ● When do I use multiplication to solve a word problem? ● When do I use division to solve a word problem? ● How can I use multiplication and/or division to find an unknown number? ● How can I use rounding to check for reasonableness? ● How can I measure the area of a rectangle? ● 	<ul style="list-style-type: none"> ● I can use an array or area model to multiply. ● I can use repeated addition, skip counting, using doubles and adding on to a fact to answer a multiplication questions. ● I know the commutative property of multiplication is the order of the factors does not change the product. ● I know the associative property of multiplication is when I multiply 3 numbers, the way the numbers are grouped does not change the product. ● I know the identity property of multiplication is when I multiply 1 and any number, the product is that same number. ● I know the distributive property is when I multiply the sum of 2 numbers by a 3rd number, it is the same as multiplying each addend by the 3rd number and adding the product. ● I can use rectangles as models to help me understand the distributive property. ● I can use multiplication to solve word problems. ● I can use equal sharing and rectangular array to solve word problems that involve division. ● Knowing multiplication facts will help me remember division facts. ● Multiplication and division are opposites.

	<ul style="list-style-type: none"> ● I can determine the unknown whole number in a multiplication or division equation relating three whole numbers. ● I can use strategies, such as underlining clue words, to help solve word problems including multiplication, division, addition, and/or subtraction. ● I can round to the nearest ten or hundred. ● I can measure the area of a rectangle by using a multiplication array.
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Differentiation		
504	<ul style="list-style-type: none"> ● preferential seating ● extended time on tests and assignments ● reduced homework or classwork ● verbal, visual, or technology aids 	<ul style="list-style-type: none"> ● modified textbooks or audio-video materials ● behavior management support ● adjusted class schedules or grading ● verbal testing
Enrichment	<ul style="list-style-type: none"> ● Utilize collaborative media tools ● Provide differentiated feedback ● Opportunities for reflection ● 	<ul style="list-style-type: none"> ● Encourage student voice and input ● Model close reading ● Distinguish long term and short term goals
IEP	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Graphic organizers 	<ul style="list-style-type: none"> ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors

ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge 	<ul style="list-style-type: none"> ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
At-risk	<ul style="list-style-type: none"> ● Purposeful seating ● Counselor involvement ● Parent involvement 	<ul style="list-style-type: none"> ● Contracts ● Alternate assessments ● Hands-on learning
21st Century Skills		
<ul style="list-style-type: none"> ● Creativity ● Innovation ● Critical Thinking 	<ul style="list-style-type: none"> ● Problem Solving ● Communication ● Collaboration 	
Integrating Technology		
<ul style="list-style-type: none"> ● Chromebooks ● Internet research ● Online programs 	<ul style="list-style-type: none"> ● Virtual collaboration and projects ● Presentations using presentation hardware and software 	

Subject: Math	Grade: 3	Unit: 2 Modeling Multiplication, Division and Fractions	1st - 2nd Trimester (use pacing guide for specific dates)
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	
<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, 	MP.1 Make sense of problems and persevere in solving them.	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p>	

<p>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.4 Model with mathematics.</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. 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.) 	<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>

<p>*[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> <ul style="list-style-type: none"> ● 3.MD.C.7. Relate area to the operations of multiplication and addition. 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. 		<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>
<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 	<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>Concept(s):</p> <ul style="list-style-type: none"> • Areas of rectilinear figures can be determined by decomposing them into nonoverlapping 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

<p>them into nonoverlapping rectangles and adding the areas of the nonoverlapping parts, applying this technique to solve real world problems.</p>	<p>MP.7 Look for and make use of structure.</p>	<p>rectangles.</p> <ul style="list-style-type: none"> • 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 within 40 with accuracy and efficiency. <p>Learning Goal 5: Fluently multiply and divide within 40 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. 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>For example, observe that 4 times a number is always even, and explain why 4</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>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

<p><i>times a number can be decomposed into two equal addends.</i></p>	<p>MP.8 Look for and express regularity in repeated reasoning</p>	<p>tables and multiplication tables.</p> <ul style="list-style-type: none"> 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>
<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 two 2-digit whole numbers within 100 with accuracy and efficiency. <p>Learning Goal 8: Fluently add and subtract (with regrouping) two 2-digit whole numbers within 100.</p>

<ul style="list-style-type: none"> • 3.NF.A.1. Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. *[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.] • 3.G.A.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts having equal area and describe the area of each part as $\frac{1}{4}$ of the area of the shape. 	<p>MP.2 Reason abstractly and quantitatively.</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"> • 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 $\frac{1}{b}$ is the quantity formed by 1 part when a whole is partitioned into b equal parts. • Fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$ (e.g. $\frac{10}{2}$ is 10 parts and each part is of size $\frac{1}{2}$). <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 $\frac{a}{b}$ is the quantity formed by a parts of size $\frac{1}{b}$ (For example, $\frac{10}{2}$ is 10 parts and each part is of size $\frac{1}{2}$). <p>Learning Goal 9: Partition shapes into parts with equal areas and express the area of each</p>
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Formative Assessments	Summative Assessments
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<ul style="list-style-type: none"> ● Quick Writing ● Whiteboard work/Slatework ● Exit tickets ● Entrance Tickets ● Checks for Understanding ● Quizzes ● Small group activities ● Pre-Assessment ● Teacher’s observation ● Kahoot ● Quizlet 	<ul style="list-style-type: none"> ● Test ● Common Assessment ● Post Unit Assessment ● Benchmark Assessment
Suggested Primary Resources	Suggested Supplemental Resources
MyMath	IXL. com - Activities E-M; N - 1, 2, 5, 6, 7, 8, 9, 10; O- 1, 3, 4, 5; P- 10, 11; Q-6; S- 10, 11; Reflex Math Engage NY - Module 1, 3, 7 (topic A) Anchor Charts Games Reflex Math
Cross-Curricular Connections & 21st Century Skills	
<ul style="list-style-type: none"> ● Open ended math problems using language from ELA ● Math Read Alouds ● Youtube Videos 	
Essential Questions	Enduring Understanding
<ul style="list-style-type: none"> ● What are the parts of a fraction? ● What are the different ways to represent fractions? ● How can I express whole numbers as fractions? ● How can I measure the area of a rectangle? ● How can I break shapes into equal areas? ● What are multiplication patterns? ● What are the multiples of 10? 	<ul style="list-style-type: none"> ● A denominator is the bottom number of a fraction and it tells how many parts are divided. ● A numerator is the top number of a fraction and tells how many parts of the whole you have. ● When I am using fractions, the whole must be divided into equal parts. ● I can show fractions with a number line, divided into equal parts.

- How can I solve division problems?
- How can multiplication help me to divide?
- When do I use multiplication to solve a word problem?
- When do I use division to solve a word problem?
- How can I use multiplication and/or division to find an unknown number?
- How can I use the four operations to solve multi-step word problems? How can I use rounding to check for reasonableness?

- I can show fractions with a circle or rectangle, divided into equal parts.
- I can measure the area of a rectangle by using a multiplication array.
- I can use rectangles as models to help me understand the distributive property.
- I can break a shape into parts with equal areas by understanding that each part is a fraction of the area of the whole shape. The number of equal parts is the denominator of the fraction.
- Patterns in a multiplication table make it easy to learn and remember multiplication facts.
- A multiple of a whole number is found by multiplying that number by any other number.
- When I multiply 2 even numbers, the product is even.
- When I multiply 2 odd numbers, the product is odd.
- When I multiply an even and an odd product, the number will be even.
- Multiples of 10 are 10,20,30,40 and so on.
- I can use multiplication to solve word problems.
- I can use equal sharing and rectangular array to solve word problems that involve division.
- Knowing multiplication facts will help me remember division facts.
- Multiplication and division are opposites.
- I can determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- I can use strategies, such as underlining clue words, to help solve word problems including multiplication, division, addition, and/or subtraction.
- I can round to the nearest ten or hundred to check my answers.

Differentiation

504	<ul style="list-style-type: none"> ● preferential seating ● extended time on tests and assignments ● reduced homework or classwork ● verbal, visual, or technology aids 	<ul style="list-style-type: none"> ● modified textbooks or audio-video materials ● behavior management support ● adjusted class schedules or grading ● verbal testing
Enrichment	<ul style="list-style-type: none"> ● Utilize collaborative media tools ● Provide differentiated feedback ● Opportunities for reflection ● 	<ul style="list-style-type: none"> ● Encourage student voice and input ● Model close reading ● Distinguish long term and short term goals
IEP	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Graphic organizers 	<ul style="list-style-type: none"> ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors
ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge 	<ul style="list-style-type: none"> ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers

At-risk	<ul style="list-style-type: none"> ● Purposeful seating ● Counselor involvement ● Parent involvement 	<ul style="list-style-type: none"> ● Contracts ● Alternate assessments ● Hands-on learning
21st Century Skills		
<ul style="list-style-type: none"> ● Creativity ● Innovation ● Critical Thinking 	<ul style="list-style-type: none"> ● Problem Solving ● Communication ● Collaboration 	
Integrating Technology		
<ul style="list-style-type: none"> ● Chromebooks ● Internet research ● Online programs 	<ul style="list-style-type: none"> ● Virtual collaboration and projects ● Presentations using presentation hardware and software 	

Subject: Math	Grade: 3	Unit: 3 Fractions as Numbers and Measurement	2nd and 3rd Trimester (use pacing guide for specific dates)
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	
<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. <ul style="list-style-type: none"> ○ 3.NF.A.2a. Represent a fraction $\frac{1}{b}$ 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 $\frac{1}{b}$ and that the endpoint of 	MP.5 Use appropriate tools strategically	<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 $\frac{1}{b}$ on the number line is the location of fraction $\frac{1}{b}$ (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 $\frac{1}{b}$) on the number line. 	

<p>the part based at 0 locates the number $1/b$ on the number line.</p> <ul style="list-style-type: none"> ○ 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>*[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"> • 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>
<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 	<p>MP 2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Comparing fractions, each referencing the same whole. • Fractions are equivalent if they are the same size. • Fractions are equivalent if they are at the same point on a number line.

<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. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ 	<p>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>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>
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and 1 at the same point of a number line diagram.

○ 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.

*[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]

<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>Concepts:</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 jumps 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</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>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>masses or volumes that are given in the same units.</p>	<p>MP.5 Use appropriate tools strategically. MP.6 Attend to precision.</p>	<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 given 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 $8 \times 5 = 40$, 	<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</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 within 100 with accuracy and efficiency <p>Learning Goal 8: Fluently multiply and divide within 100 using strategies such as the relationship between</p>

<p>one knows $40 \div 5 = 8$) or properties of operations.</p> <p>By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)</p>	<p>regularity in repeated reasoning</p>	<p>multiplication and division.</p>
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Formative Assessments	Summative Assessments
<ul style="list-style-type: none"> ● Quick Writing ● Whiteboard work/Slatework ● Exit tickets ● Entrance Tickets ● Checks for Understanding ● Quizzes ● Small group activities ● Pre-Assessment ● Teacher’s observation ● Kahoot ● Quizlet 	<ul style="list-style-type: none"> ● Test ● Common Assessment ● Post Unit Assessment ● Benchmark Assessment
Suggested Primary Resources	Suggested Supplemental Resources
<p>MyMath</p>	<p>IXL - Activities T- 1, 2, 3, 6, 7, 8; U- 4, 5, 6, 7, 8; BB- 3, 4, 5, 6, 7, 13, 14, 15, 16; FF; W-Z; CC 1, 2, 3, 4; DD 4; EE Engage NY - Module 2 (Topics A, B, D, E), 4, 6, 7 (Topics C, D, E); Module 5, Module 7 (Topic A) Anchor Charts Games for Fractions</p>

Cross-Curricular Connections & 21st Century Skills

- Open ended math problems using language from ELA
- Math Read Alouds
- Youtube Videos

Essential Questions

- What are the parts of a fraction?
- How can I compare fractions?
- How can I find simple equivalent fractions?
- What are the different ways to represent fractions?
- How can I express whole numbers as fractions?
- How can I measure time?
- How can I solve word problems involving addition and subtraction of time intervals?
- How can I estimate the mass of objects?
- How can I measure mass?
- How can I estimate liquid volume?
- How can I measure volume?
- How can I use the operations to estimate and/or solve word problems involving masses or volumes?
- How can I measure perimeter?
- How can I measure area of plane figures?
- How can two rectangles have the same perimeter but have different areas?
- How can I measure the area of a rectangle?
- How can I measure irregular figures?
- What is a two-dimensional shape?
- What are polygons?
- What are the attributes of different polygons?
- What are the attributes of a triangle?
- What are the attributes of a quadrilateral?
- What are the attributes of a pentagon?

Enduring Understanding

- A denominator is the bottom number of a fraction and it tells how many parts are divided.
- A numerator is the top number of a fraction and tells how many parts of the whole you have.
- When I am using fractions, the whole must be divided into equal parts.
- I can show fractions with a number line, divided into equal parts.
- I can show fractions with a circle or rectangle, divided into equal parts.
- I can express whole numbers as fractions by putting that number over 1.
- I can compare fractions by comparing the shaded parts of models. $<$ means greater than and $>$ means lesser than.
- I can find equivalent fractions using a number line, visual representation, or multiplication.
- I can use an analog or digital clock to tell time to the nearest minute.
- I can measure elapsed time in minutes by counting up from the earlier time or skip counting.
- I can measure mass by using a balance or a scale.
- I can measure volume and mass by using metric units.
- I can use drawings and other strategies to represent a word problem involving mass and volume.
- I can measure length with an inch ruler, marked with halves and fourths of an inch.
- I can measure perimeter by adding the sides of an object.

- What are the attributes of a hexagon?
- What are the attributes of an octagon?
- How can I break shapes into equal areas?

- I can measure area by counting the square units that cover the unit without overlapping.
- I can measure the area of a rectangle by using a multiplication array.
- I can use rectangles as models to help me understand the distributive property.
- I can measure irregular figures by breaking them apart into rectangles or squares and finding the area of each part, then adding them together.
- Two rectangles that have the same perimeter can have different areas.
- Two dimensional shapes lie on a flat surface, or plane. They are called plane figures.
- I know that polygons are two-dimensional figures formed by three or more straight sides that do not cross each other.
- I know that a triangle is a polygon with 3 sides and 3 vertices.
- A quadrilateral is a polygon with 4 sides and 4 vertices.
- I know that a pentagon is a polygon with 5 sides and 5 vertices.
- I know that a hexagon is a polygon with 6 sides and 6 vertices.
- I know that an octagon is a polygon with 8 sides and 8 vertices.
- I can break a shape into parts with equal areas by understanding that each part is a fraction of the area of the whole shape. The number of equal parts is the denominator of the fraction.

Differentiation

504	<ul style="list-style-type: none"> ● preferential seating ● extended time on tests and assignments ● reduced homework or classwork ● verbal, visual, or technology aids 	<ul style="list-style-type: none"> ● modified textbooks or audio-video materials ● behavior management support ● adjusted class schedules or grading ● verbal testing
Enrichment	<ul style="list-style-type: none"> ● Utilize collaborative media tools ● Provide differentiated feedback ● Opportunities for reflection ● 	<ul style="list-style-type: none"> ● Encourage student voice and input ● Model close reading ● Distinguish long term and short term goals
IEP	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Graphic organizers 	<ul style="list-style-type: none"> ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors
ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge 	<ul style="list-style-type: none"> ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
At-risk	<ul style="list-style-type: none"> ● Purposeful seating ● Counselor involvement ● Parent involvement 	<ul style="list-style-type: none"> ● Contracts ● Alternate assessments ● Hands-on learning

21st Century Skills

- Creativity
- Innovation
- Critical Thinking

- Problem Solving
- Communication
- Collaboration

Integrating Technology

- Chromebooks
- Internet research
- Online programs

- Virtual collaboration and projects
- Presentations using presentation hardware and software

Subject: Math	Grade: 3	Unit: 4 Representing Data	3rd Trimester (use pacing guide for specific dates)
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	
<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. For example, draw a bar graph in which each square in the bar graph might represent 5 pets. 	<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>	
<p>3.MD.B.4. Generate measurement data by measuring lengths using</p>	<p>MP.2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Show measurements on a line plot displays the information in an 	

<p>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.5 Use appropriate tools strategically.</p>	<p>organized way</p> <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>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.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division</p>	<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 within 100 with accuracy and efficiency.

<p>(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.8 Look for and express regularity in repeated reasoning.</p>	<p>Learning Goal 3: Fluently multiply and divide within 100 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 strategies including rounding.</p> <p>*(benchmarked)</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>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>
<p>3.NBT.A.2. Fluently add and subtract within 1000 using</p>	<p>MP 2 Reason abstractly and quantitatively.</p>	<p>Concept(s): No new concept(s) introduced</p>

<p>strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)</p>		<p>Students are able to:</p> <ul style="list-style-type: none"> • add and subtract within 1000 with accuracy and efficiency. <p>Learning Goal 5: 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.</p>
<p>3.MD.C.7. Relate area to the operations of multiplication and addition.</p> <ul style="list-style-type: none"> • 3.MD.C.7d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into nonoverlapping rectangles and adding the areas of the nonoverlapping parts, applying this technique to solve real world problems. <p>*(benchmarked)</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 decomposing the them into nonoverlapping 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>

Formative Assessments	Summative Assessments
<ul style="list-style-type: none"> ● Quick Writing ● Whiteboard work/Slatework ● Exit tickets ● Entrance Tickets ● Checks for Understanding ● Quizzes ● Small group activities ● Pre-Assessment ● Teacher’s observation ● Kahoot ● Quizlet 	<ul style="list-style-type: none"> ● Test ● Common Assessment ● Post Unit Assessment ● Benchmark Assessment
Suggested Primary Resources	Suggested Supplemental Resources
MyMath	IXL - Activities T- 1, 2, 3, 6, 7, 8; U- 4, 5, 6, 7, 8; BB- 3, 4, 5, 6, 7, 13, 14, 15, 16; FF Engage NY - Module 2 (Topics A, B, D, E), 4, 6, 7 (Topics C, D, E) Anchor Charts Games to reinforce skills Reflex Math
Cross-Curricular Connections & 21 st Century Skills	
<ul style="list-style-type: none"> ● Open ended math problems using language from ELA ● Math Read Alouds ● Youtube Videos 	
Essential Questions	Enduring Understanding
<ul style="list-style-type: none"> ● How can I measure irregular figures? ● What is a picture graph? ● What is a bar graph? ● What is a line plot? ● How can I measure length? 	<ul style="list-style-type: none"> ● I can measure irregular figures by breaking them apart into rectangles or squares and finding the area of each part, then adding them together. ● I can draw a scaled picture graph to represent a data set with several categories. ● I can draw a scaled bar graph to compare information and/or represent a data set with several categories.

	<ul style="list-style-type: none"> ● A line plot uses marks to show the number of times that each value or result occurs. ● I can measure length with an inch ruler, marked with halves and fourths of an inch.
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Differentiation		
504	<ul style="list-style-type: none"> ● preferential seating ● extended time on tests and assignments ● reduced homework or classwork ● verbal, visual, or technology aids 	<ul style="list-style-type: none"> ● modified textbooks or audio-video materials ● behavior management support ● adjusted class schedules or grading ● verbal testing
Enrichment	<ul style="list-style-type: none"> ● Utilize collaborative media tools ● Provide differentiated feedback ● Opportunities for reflection ● 	<ul style="list-style-type: none"> ● Encourage student voice and input ● Model close reading ● Distinguish long term and short term goals
IEP	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Graphic organizers 	<ul style="list-style-type: none"> ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors

ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge 	<ul style="list-style-type: none"> ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
At-risk	<ul style="list-style-type: none"> ● Purposeful seating ● Counselor involvement ● Parent involvement 	<ul style="list-style-type: none"> ● Contracts ● Alternate assessments ● Hands-on learning
21st Century Skills		
<ul style="list-style-type: none"> ● Creativity ● Innovation ● Critical Thinking 	<ul style="list-style-type: none"> ● Problem Solving ● Communication ● Collaboration 	
Integrating Technology		
<ul style="list-style-type: none"> ● Chromebooks ● Internet research ● Online programs 	<ul style="list-style-type: none"> ● Virtual collaboration and projects ● Presentations using presentation hardware and software 	

Appendix A

Audubon Public Schools
Engaging Students ~ Fostering Achievement ~ Cultivating 21st Century Global Skills
Written By: Beth Canzanese
Revised By: Kelly Skala
Approved June 2017
Course Title: Third Grade Math Unit Name: Operations and Algebraic Thinking
Grade Level: 3

<p>Content Statements Using multiplication and division in order to solve everyday problems; application of properties of numbers and identification of multiplication properties.</p>	<p>NJSLS: 3.OA.1-9</p>
<p>Overarching Essential Questions What is multiplication? What is division?</p>	<p>Overarching Enduring Understandings Multiplication saves time when I am adding the same number over and over again. The numbers I multiply are called factors. The answer when I multiply is called the product. When I write the factors and product together I create a number sentence. Division is when I break a total into equal groups. The number divided is the dividend. The number I am dividing by is the divisor. The answer when I divide is the quotient.</p>
<p>Unit Essential Questions What the ways I can solve a multiplication problem? How can I find the answer to a multiplication problem? What are the properties of multiplication? What are multiplication patterns? What are the multiples of 10? How can I solve division problems?</p>	<p>Unit Enduring Understandings I can use an array or area model to multiply. I can use repeated addition, skip counting, using doubles and adding on to a fact to answer a multiplication questions. I know the commutative property of multiplication is the order of the factors does not change the product.</p>

<p>How can multiplication help me to divide?</p> <p>When do I use multiplication to solve a word problem?</p> <p>When do I use division to solve a word problem?</p> <p>How can I use multiplication and/or division to find an unknown number?</p> <p>How can I use the four operations to solve multi-step word problems?How can I use rounding to check for reasonableness?</p>	<p>I know the associative property of multiplication is when I multiply 3 numbers, the way the numbers are grouped does not change the product.</p> <p>I know the identity property of multiplication is when I multiply 1 and any number, the product is that same number.</p> <p>I know the distributive property is when I multiply the sum of 2 numbers by a 3rd number, it is the same as multiplying each addend by the 3rd number and adding the product.</p> <p>I can use rectangles as models to help me understand the distributive property.</p> <p>Patterns in a multiplication table make it easy to learn and remember multiplication facts.</p> <p>A multiple of a whole number is found by multiplying that number by any other number.</p> <p>When I multiply 2 even numbers, the product is even.</p> <p>When I multiply 2 odd numbers, the product is odd.</p> <p>When I multiply an even and an odd product, the number will be even.</p> <p>Multiples of 10 are 10,20,30,40 and so on.</p> <p>I can use multiplication to solve word problems.</p> <p>I can use equal sharing and rectangular array to solve word problems that involve division.</p> <p>Knowing multiplication facts will help me remember division facts.</p> <p>Multiplication and division are opposites.</p> <p>I can determine the unknown whole number in a multiplication or division equation relating three whole numbers.</p> <p>I can use strategies, such as underlining clue words, to help solve word problems including multiplication, division,addition, and/or subtraction.</p> <p>I can round to the nearest ten or hundred to check my answers.</p>
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<p>Unit Rationale Multiplication and division are essential to solving everyday problems involving math. Students must learn the rudimentary elements of multiplication and division before they can effectively apply them to solving problems.</p>	<p>Unit Overview Students will use multiplication and division in order to solve everyday problems. They will also use the application of properties of numbers and identification of multiplication properties. They will learn and strengthen multiplication and division skills by using manipulatives, playing math games, practicing math facts and solving word problems.</p>
<p>Suggested Activities</p> <p>MyMath - Chapter 4, 5, 6 (teach lessons 2, 3 together; 4, 5 together; 7, 8 together), 7 (teach lessons 1, 2 together; 4, 5 together; 7, 8 together), 8 (teach lessons 6, 7 together; 4, 5 together), 9 IXL. com - Activities E-M; N - 1, 2, 5, 6, 7, 8, 9, 10; O- 1, 3, 4, 5; P- 10, 11; Q-6; S- 10, 11; Reflex Math Engage NY - Module 1, 3, 7 (topic A) Give students opportunities to explain their answer using diagrams and sentences. Give students opportunities to distinguish correct explanation/reasoning that is flawed and present corrected reasoning.</p>	

Audubon Public Schools
Engaging Students ~ Fostering Achievement ~ Cultivating 21st Century Global Skills
Written By: Beth Canzanese
Revised By: Kelly Skala
Approved June 2017
Course Title: Third Grade Math Unit Name: Number and Operations - Fractions
Grade Level: 3

<p>Content Statements Work with numbers written as fractions; solve problems by comparing fractions.</p>	<p>NJSLS: 3. NF.1, 2.a.b.,3.a.b.,d</p>
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<p>Overarching Essential Questions What are fractions?</p>	<p>Overarching Enduring Understandings Fractions represent a part of the whole or a part of a group of objects.</p>
<p>Unit Essential Questions What are the parts of a fraction? How can I compare fractions? How can I find simple equivalent fractions? What are the different ways to represent fractions? How can I express whole numbers as fractions?</p>	<p>Unit Enduring Understandings A denominator is the bottom number of a fraction and it tells how many parts are divided. A numerator is the top number of a fraction and tells how many parts of the whole you have. When I am using fractions, the whole must be divided into equal parts. I can show fractions with a number line, divided into equal parts. I can show fractions with a circle or rectangle, divided into equal parts. I can express whole numbers as fractions by putting that number over 1. I can compare fractions by comparing the shaded parts of models. $<$ means greater than and $>$ means lesser than. I can find equivalent fractions using a number line, visual representation, or multiplication.</p>
<p>Unit Rationale Understanding how fractions are represented allow students to compare and find the equivalent fractions.</p>	<p>Unit Overview Students will work with numbers written as fractions and solve problems by comparing fractions. They will learn and strengthen fraction skills by using manipulatives, playing math games, practicing math facts and solving word problems.</p>

Suggested Activities

MyMath - Chapter 10

IXL.com - Activities W-Z

Engage NY - Module 5

Provide students with opportunities to explain their reasoning and answers with diagrams, number lines, and sentences.

Provide students with opportunities to distinguish a correct explanation/reasoning from that which is flawed and present correct reasoning.

Audubon Public Schools
Engaging Students ~ Fostering Achievement ~ Cultivating 21st Century Global Skills
Written By: Beth Canzanese
Revised By: Kelly Skala
Approved June 2017
Course Title Third Grade Math Unit Name: Numbers and Operations in Base Ten
Grade Level: 3

Content Statements Understanding place value and its use in the properties of operations to add and subtract; rounding 10s and 100s	NJSLS: 3.NBT.1-2 3.OA.8-9
Overarching Essential Questions What is place value? What are the properties of operations to add and subtract?	Overarching Enduring Understandings Place value helps me understand the value of each digit in a number. Addition properties are commutative and identity.
Unit Essential Questions What are whole numbers? What is place value? What are the parts of an addition problem? What is the commutative property in addition? What is the identity property in addition? What is the associative property of addition? What are addition patterns? How can I round to 10s and 100s?	Unit Enduring Understandings The digits 0,1,2,3,4,5,6,7,8,9 are used to write whole numbers. Each digit has a value based on its position in a number. I can round to the nearest ten or hundred to check for reasonableness. I know the commutative property of addition is the order in which I add 2 numbers does not change the sum.

<p>How can I use rounding to check for reasonableness? How can I add whole numbers? What are the parts of a subtraction problem? How can I subtract whole numbers? When do I use addition to solve a word problem? When do I use subtraction to solve a word problem? How can I use addition and subtraction to solve multi-step word problems?</p>	<p>I know the identity property of addition is when I add zero to any number, the number remains the same. I know the associative property of addition is when I add three numbers, the way the numbers are grouped does not change the sum. Addition patterns are commutative or identity When I add 2 even numbers, the sum will be even. When I add 2 odd numbers, the sum will be even. When I add an even and an odd number, the sum will be odd. I can use place value, properties, and a/or relationship between addition and subtraction to fluently add or subtract within 1000.</p> <p>Adding tells me how much of something. When I add, the numbers are called addends and the answer is a sum. Subtracting tells me the how much of something is left. When I subtract, the number I take away from is called a minuend, the number I take away is called a subtrahend and the answer is the difference. I can use strategies, such as underlining important information, to solve one-or multi-step word problems using addition and/or subtraction.</p>
<p>Unit Rationale Understanding and using the fundamentals of the properties of operations allows students to perform multi-digit arithmetic.</p>	<p>Unit Overview Students will learn to add and subtract within 100, by using base ten and properties of operations for addition and subtraction in order to solve word problems. They will also begin to compare three digit numbers as a basis of the multiplication process.</p>

Suggested Activities

MyMath - Chapters 1, 2, 3

IXL.com - Activities A- 7, 9, 10, 11, 12, 13; B-D; N- 3, 4; O- 2; P- 1, 2, 5, 6, 7, 8; Q- 5

Engage NY- Module 2 Topic C

Reflex Math

Provide students with opportunities to explain their reasoning and answers with diagrams, number lines, and sentences.

Provide students with opportunities to distinguish a correct explanation/reasoning from that which is flawed and present correct reasoning.

Audubon Public Schools
Engaging Students ~ Fostering Achievement ~ Cultivating 21st Century Global Skills
Written By: Beth Canzanese
Revised By: Kelly Skala
Approved June 2017
Course Title: Third Grade Math Unit Name: Measurement and Data
Grade Level: 3

Content Statements Measurement of time, mass, capacity, perimeter, area, rectangles, irregular figures, picture and bar graphs, line plots.	NJSLS: 3. MD.1-8
Overarching Essential Questions What is measurement?	Overarching Enduring Understandings Measurement is determining the extent, capacity or size of an object or space.
Unit Essential Questions How can I measure time? How can I solve word problems involving addition and subtraction of time intervals? How can I estimate the mass of objects? How can I measure mass?	Unit Enduring Understandings I can use an analog or digital clock to tell time to the nearest minute. I can measure elapsed time in minutes by counting up from the earlier time or skip counting. I can measure mass by using a balance or a scale.

<p>How can estimate liquid volume? How can I measure volume? How can I use the operations to estimate and/or solve word problems involving masses or volumes? How can I measure length? How can I measure perimeter? How can I measure area of plane figures? How can two rectangles have the same perimeter but have different areas? How can I measure the area of a rectangle? How can I measure irregular figures? What is a picture graph? What is a bar graph? What is a line plot?</p>	<p>I can measure volume and mass by using metric units. I can use drawings and other strategies to represent a word problem involving mass and volume. I can measure length with an inch ruler, marked with halves and fourths of an inch. I can measure perimeter by adding the sides of an object. I can measure area by counting the square units that cover the unit without overlapping. I can measure the area of a rectangle by using a multiplication array. I can use rectangles as models to help me understand the distributive property. I can measure irregular figures by breaking them apart into rectangles or squares and finding the area of each part, then adding them together. Two rectangles that have the same perimeter can have different areas. I can draw a scaled picture graph to represent a data set with several categories. I can draw a scaled bar graph to compare information and/or represent a data set with several categories. A line plot uses marks to show the number of times that each value or result occurs.</p>
<p>Unit Rationale Measurement and data analysis are the basis of understanding geometric shapes, composition and problem solving. Most applied math involves measurement.</p>	<p>Unit Overview Students will learn to measure of time, mass, capacity, perimeter, area, rectangles, irregular figures, picture and bar graphs, line plots. They will practice by using various clocks, manipulatives, graphs and line plots.</p>

Suggested Activities

MyMath - Chapters 11, 12, 13

IXL - Activities T- 1, 2, 3, 6, 7, 8; U- 4, 5, 6, 7, 8; BB- 3, 4, 5, 6, 7, 13, 14, 15, 16; FF

Engage NY - Module 2 (Topics A, B, D, E), 4, 6, 7 (Topics C, D, E)

Provide students with opportunities to explain their reasoning and answers with diagrams, number lines, and sentences.

Provide students with opportunities to distinguish a correct explanation/reasoning from that which is flawed and present correct reasoning.

Audubon Public Schools
Engaging Students ~ Fostering Achievement ~ Cultivating 21st Century Global Skills
Written By: Beth Canzanese
Revised By: Kelly Skala
Approved June 2017
Course Title: Third Grade Math Unit Name: Geometry
Grade Level: 3

Content Statements Reasoning with, defining, composing shapes and angles and their attributes. Properties of two-dimensional shapes.	NJSLS: 3.G.1
Overarching Essential Questions Why do I need to know how to distinguish attributes of shapes?	Overarching Enduring Understandings Attributes of shapes, including angles and equal faces, help me to understand objects and compose new shapes.
Unit Essential Questions What is a two-dimensional shape? What are polygons? What are the attributes of different polygons? What are the attributes of a triangle?	Unit Enduring Understandings Two dimensional shapes lie on a flat surface, or plane. They are called plane figures.

<p>What are the attributes of a quadrilateral? What are the attributes of a pentagon? What are the attributes of a hexagon? What are the attributes of an octagon? How can I break shapes into equal areas?</p>	<p>I know that polygons are two-dimensional figures formed by three or more straight sides that do not cross each other. I know that a triangle is a polygon with 3 sides and 3 vertices. A quadrilateral is a polygon with 4 sides and 4 vertices. I know that a pentagon is a polygon with 5 sides and 5 vertices. I know that a hexagon is a polygon with 6 sides and 6 vertices. I know that an octagon is a polygon with 8 sides and 8 vertices. I can break a shape into parts with equal areas by understanding that each part is a fraction of the area of the whole shape. The number of equal parts is the denominator of the fraction.</p>
<p>Unit Rationale Understanding the attributes of shapes provides a foundation for recognizing, analyzing and drawing more complex shapes and enhances students' capacity to grasp that shared attributes can define a larger category.</p>	<p>Unit Overview Students will reason with, define, and compose shapes and angles and their attributes. They will identify the properties of two-dimensional shapes. They will use manipulatives and word problems to investigate geometry.</p>
<p>Suggested Activities MyMath - Chapter 14 IXL - Activities CC 1, 2, 3, 4; DD 4; EE Engage NY - Module 7 (Topic A) Provide students with opportunities to explain their reasoning and answers with diagrams, number lines, and sentences. Provide students with opportunities to distinguish a correct explanation/reasoning from that which is flawed and present correct reasoning.</p>	

Appendix

Differentiation	
Enrichment	<ul style="list-style-type: none">● Utilize collaborative media tools● Provide differentiated feedback● Opportunities for reflection● Encourage student voice and input● Model close reading● Distinguish long term and short term goals
Intervention & Modification	<ul style="list-style-type: none">● Utilize “skeleton notes” where some required information is already filled in for the student● Provide access to a variety of tools for responses● Provide opportunities to build familiarity and to practice with multiple media tools● Leveled text and activities that adapt as students build skills● Provide multiple means of action and expression● Consider learning styles and interests● Provide differentiated mentors● Graphic organizers

ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
21st Century Skills	
<ul style="list-style-type: none"> ● Creativity ● Innovation ● Critical Thinking ● Problem Solving ● Communication ● Collaboration 	
Integrating Technology	
<ul style="list-style-type: none"> ● Chromebooks ● Internet research ● Online programs ● Virtual collaboration and projects ● Presentations using presentation hardware and software 	