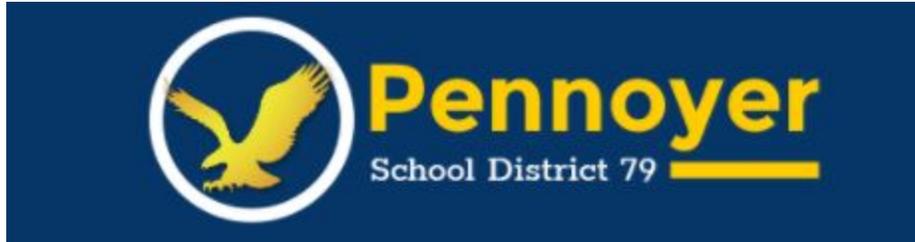


# Pennoyer School District 79



## **Math Subject Area Committee Members**

Annette Garcia

Erica Hauer

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Aliaa Ibrahim, Principal

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## **Pennoyer School District Vision and Mission**

### **DISTRICT VISION:**

**Pennoyer School District 79 staff, parents, and community members will empower students and foster their development in their present and future academic and life experiences.**

- Continue to foster empathetic, inclusive, and nurturing learning environment.
- Expand opportunities for collaboration and creative thinking.
- Redefine the use of technology.
- Create a platform for expression of student voice and choice.

### **DISTRICT MISSION:**

#### **The pathway to our vision includes**

- Acknowledging all exceptionalities and expanding opportunities for students.
- Maintaining existing and emerging practices.
- Encouraging students to take an active role in their academic lives.
- Engaging parents and the community for the success of the school

### **Subject Mission**

Pennoyer students will apply the standards of mathematical practice and demonstrate mathematical fluency independently and collaboratively to apply to real world contexts.

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## Course Purposes

<b>Kindergarten</b>	Students will connect numbers to quantities, use numbers to represent and relate, and compose and decompose numbers as they develop number sense. Students will use geometric ideas and spatial reasoning to describe their physical world.
<b>1st Grade</b>	Students will use numbers to represent, solve, and apply the properties and relationship of addition and subtraction with use of place value to solve problems. Students will fluently add and subtract within 20 as they extend the counting sequence.
<b>2nd Grade</b>	Students will apply place value concepts to the base-ten system in working with multi-digit numbers. Students will select and apply strategies to develop fluency with addition and subtraction within 100.
<b>3rd Grade</b>	Students will use multiplication and division strategies and the relationship between multiplication and division to solve problems within 100.
<b>4th Grade</b>	Students will use the four operations in multi-step processes, including two-digit by two-digit multiplication, long division, and equivalent fractions.

<b>5th Grade</b>	Students will solve problems involving fractions, decimals, and volume using the four operations.
<b>6th Grade</b>	Students will calculate and apply operations with positive rational numbers. Students will relate multiplication and division to ratios and proportional relationships. Students will construct and evaluate expressions and generate and solve equations.
<b>7th Grade</b>	Students will calculate and apply operations with rational numbers to solve real world problems. Students will apply algebraic concepts to solve one-step and two-step equations with rational numbers and apply to real world contexts.
<b>8th Grade</b>	Students will construct and solve multi-step linear equations to apply to real world contexts. Students will construct and solve systems of equations to apply to real world contexts. Students will construct and compare multiple representations of functions.

## Kindergarten

<b>Course Purpose:</b>	Students will connect numbers to quantities, use numbers to represent and relate, and compose and decompose numbers as they develop number sense. Students will use geometric ideas and spatial reasoning to describe their physical world.
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Outcome #	Outcome



## 2nd Grade

<b>Course Purpose:</b>	Students will apply place value concepts to the base-ten system in working with multi-digit numbers. Students will select and apply strategies to develop fluency with addition and subtraction within 100.
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<b>Outcome #</b>	<b>Outcome</b>

**3rd Grade**

<b>Course Purpose:</b>	Students will use multiplication and division strategies and the relationship between multiplication and division to solve problems within 100.
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<b>Outcome #</b>	

4th Grade

<b>Course Purpose:</b>	<b>Students will use the four operations in multi-step processes, including two-digit by two-digit multiplication, long division, and equivalent fractions.</b>
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<b>Outcome #</b>	<b>Outcome</b>

**5th Grade**

<b>Course Purpose:</b>	Students will solve problems involving fractions, decimals, and volume using the four operations.
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<b>Outcome #</b>	<b>Outcome</b>

## 6th Grade

<b>Course Purpose:</b>	Students will calculate and apply operations with positive rational numbers. Students will relate multiplication and division to ratios and proportional relationships. Students will construct and evaluate expressions and generate and solve equations.
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<b>Outcome #</b>	<b>Outcome</b>

**7th Grade**

<b>Course Purpose:</b>	Students will calculate and apply operations with rational numbers to solve real word problems. Students will apply algebraic concepts to solve one-step and two-step equations with rational numbers and apply to real world contexts.
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<b>Outcome #</b>	<b>Outcome</b>

**8th Grade**

<b>Course Purpose:</b>	Students will construct and solve multi-step linear equations to apply to real world contexts. Students will construct and solve systems of equations to apply to real world contexts. Students will construct and compare multiple representations of functions.
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<b>Outcome #</b>	<b>Outcome</b>

**Kindergarten  
Outcomes and Components**

<b>Course Purpose:</b>	Students will connect numbers to quantities, use numbers to represent and relate, and compose and decompose numbers as they develop number sense. Students will use geometric ideas and spatial reasoning to describe their physical world.
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**Outcomes and Components:**

<b>M.K.1</b>	Students will count, represent, compare, and write numbers 0-10.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.K.1.1</b>	Write numbers 0-10.	<b>K.CC.A.3</b>
	<b>M.K.1.2</b>	Represent a number of objects with a written numeral 0-10.	<b>K.CC.A.3</b>
	<b>M.K.1.3</b>	Count a group of objects from 0-10 with 1:1 correspondence and explain that the last number said is how many objects there are regardless of arrangement (to include arrangements in a line, rectangular array, or a circle. or as many as 10 things in a scattered configuration	<b>K.CC.B.4a K.CC.B.4b K.CC.B.5</b>
	<b>M.K.1.4</b>	Identify whether the number of objects in a group is greater than, less than, or equal to the number of objects in another group by using matching and counting strategies.	<b>K.CC.C.6</b>
	<b>M.K.1.5</b>	Compare two numbers between 1 and 10 presented as written numerals.	<b>K.CC.C.7</b>

<b>Academic Vocabulary:</b>
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<b>Content Vocabulary:</b>
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<b>M.K.2</b>	<b>Students will count, represent, and write numbers 11-20.</b>		
	<b>Students will...</b>		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.K.2.1</b>	Write numbers 11-20.	<b>K.CC.A.3</b>
	<b>M.K.2.2</b>	Represent a number of objects with a written numeral 11-20.	<b>K.CC.A.3</b>
	<b>M.K.2.3</b>	Count a group of objects from 11-20 with 1:1 correspondence and explain that the last number said is how many objects there are regardless of arrangement (to include arrangements in a line, rectangular array, or a circle).	<b>K.CC.B.4a K.CC.B.4b K.CC.B.5</b>

**Academic Vocabulary:** Double

**Content Vocabulary:** Double Ten Frames, Ten & Some More, Teen Family, tens and ones

<b>M.K.3</b>	<b>Students will count to 100 within the known sequence.</b>		
	<b>Students will...</b>		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.K.3.1</b>	Count to 100 by ones and tens.	<b>K.CC.A.1</b>
	<b>M.K.3.2</b>	Count forward beginning from a given number, other than 1, within the known sequence.	<b>K.CC.A.2</b>
	<b>M.K.3.3</b>	Explain that each successive number name refers to a quantity that is one larger.	<b>K.CC.B.4.C</b>

**Academic Vocabulary:**

**Content Vocabulary:** Count forward from...  
Number

<b>M.K.4</b>	<b>Students will relate addition to putting together and adding to, while using multiple strategies.</b>		
	<b>Students will...</b>		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.K.4.1</b>	Represent addition problems using strategies (to include objects, fingers, mental images, drawings, sounds, acting out, verbal explanations, expressions, or equations).	<b>K.OA.A.1</b>
	<b>M.K.4.2</b>	Solve addition word problems* within 10 by using objects or drawings to represent the problem.	<b>K.OA.A.2</b>
	<b>M.K.4.3</b>	Decompose numbers less than or equal to 10 into pairs in more than one way and record each decomposition by a drawing or equation.	<b>K.OA.A.3</b>
	<b>M.K.4.4</b>	Find the number that makes 10 when added to a number 1-9 by using objects or drawings and record the answer with a drawing or equation.	<b>K.OA.A.4</b>
	<b>M.K.4.5</b>	Add fluently within 5.	<b>K.OA.A.5</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>M.K.5</b>	<b>Students will relate subtraction to taking apart and taking from, while using multiple strategies.</b>		
	<b>Students will...</b>		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.K.5.1</b>	Represent subtraction problems using strategies (to include objects, fingers, mental images, drawings, sounds, acting out, verbal explanations, expressions, or equations).	<b>K.OA.A.1</b>
	<b>M.K.5.2</b>	Solve subtraction word problems* within 10 by using objects or drawings to represent the problem.	<b>K.OA.A.2</b>
	<b>M.K.5.3</b>	Decompose numbers less than or equal to 10 into pairs in more than one way and record each decomposition by a drawing or equation.	<b>K.OA.A.3</b>
	<b>M.K.5.4</b>	Subtract fluently within 5.	<b>K.OA.A.5</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>M.K.6</b>	<b>Students will use two-dimensional and three-dimensional shapes to describe objects and positions of objects in their world.</b>		
	<b>Students will...</b>		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.K.6.1</b>	Describe objects in the environment using names of two-dimensional and	<b>K.G.A.1</b>

		three-dimensional shapes (to include squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, cones, cylinders, and spheres).	
	<b>M.K.6.2</b>	Describe the relative position of shapes using terms such as above, below, beside, in front of, behind, and next to.	<b>K.G.A.1</b>
	<b>M.K.6.3</b>	Name shapes regardless of their orientations or overall size.	<b>K.G.A.2</b>
	<b>M.K.6.4</b>	Classify shapes as two-dimensional or three-dimensional.	<b>K.G.A.3</b>
	<b>M.K.6.5</b>	Analyze and compare two-dimensional and three-dimensional shapes in different sizes and orientations to describe similarities, differences, parts, and other attributes.	<b>K.G.B.4</b>
	<b>M.K.6.6</b>	Model shapes in the world by building shapes from components and drawing shapes.	<b>K.G.B.5</b>
	<b>M.K.6.7</b>	Compose simple shapes to form larger shapes.	<b>K.G.B.6</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>M.K.7</b>	<b>Students will describe measurable attributes of objects in their world in order to compare objects with common attributes and classify objects into categories.</b>		
	<b>Students will...</b>		
Pacing	<b>Component</b>	<b>Component</b>	<b>Standard(s)</b>

Instruct/Assess	<b>Code</b>		
	<b>M.K.7.1</b>	Describe several measurable attributes of objects, for example length, height, or weight.	<b>K.MD.A.1</b>
	<b>M.K.7.2</b>	Compare two objects directly with a measurable attribute in common to see which has “more of”/ “less of” the attribute and describe the difference.	<b>K.MD.A.2</b>
	<b>M.K.7.3</b>	Classify objects into categories; count the number of objects in each category and sort the categories by count.	<b>K.MD.B.3</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>M.K.8</b>	<b>Students will use foundational place value concepts to relate numbers 11-19.</b>		
	<b>Students will...</b>		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.K.8.1</b>	Represent digits in the ones place.	
	<b>M.K.8.2</b>	Show a ten as a group of ten ones.	
	<b>M.K.8.3</b>	Compose and decompose numbers from 11 to 19 by using objects or drawings and record each composition or decomposition by a drawing or equation.	<b>K.NBT.A.1</b>
	<b>M.K.8.4</b>	Explain that numbers 11-19 are composed of ten ones and one, two, three, four, five, six, seven, eight, or	<b>K.NBT.A.1</b>

		nine ones.	
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**Academic Vocabulary:**

**Content Vocabulary:**

**1st Grade  
Outcomes and Components**

<b>Course Purpose:</b>	<b>Students will use numbers to represent, solve, and apply the properties and relationship of addition and subtraction with use of place value to solve problems. Students will fluently add and subtract within 20 as they extend the counting sequence.</b>
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**Outcomes and Components:**

<b>M.1.1</b>	Students will add within 20 using a variety of strategies.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.1.1.1</b>	Solve word problems* within 20 by using objects, drawings, and equations, with situations including symbols for missing addends.	<b>1.OA.A.1</b>
	<b>M.1.1.2</b>	Solve word problems* involving three whole numbers with sums less than or equal to 20 by using objects, drawings, and equations.	<b>1.OA.A.2</b>
	<b>M.1.1.3</b>	Apply properties of addition as strategies to add, including using related known facts and composing addends to create easier known sums (doubles, facts of 10, near doubles).	<b>1.OA.B.3</b>
	<b>M.1.1.4</b>	Relate counting on as a strategy for addition.	<b>1.OA.C.5 1.OA.C.6</b>
	<b>M.1.1.5</b>	Demonstrate fluency for addition within 10.	<b>1.OA.C.6</b>
	<b>M.1.1.6</b>	Explain the meaning of the equal sign and determine if addition equations are true or false.	<b>1.OA.D.7</b>
	<b>M.1.1.7</b>	Produce the unknown whole number in an addition equation relating the	<b>1.OA.D.8</b>

		three whole numbers to make the equation true.	
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**Academic Vocabulary:**

**Content Vocabulary:**

<b>M.1.2</b>	Students will subtract within 20 using a variety of strategies.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.1.2.1</b>	Relate subtraction as an unknown addend problem.	<b>1.OA.B.4</b>
	<b>M.1.2.2</b>	Relate counting back as a strategy for subtraction.	<b>1.OA.C.5</b>
	<b>M.1.2.3</b>	Demonstrate fluency for subtraction within 10.	<b>1.OA.C.6</b>
	<b>M.1.2.4</b>	Solve word problems* within 20 by using objects, drawings, and equations to include taking from, taking apart, and comparing using a symbol for unknowns in any position..	<b>1.OA.A.1</b>
	<b>M.1.2.5</b>	Apply properties of subtraction as strategies to subtract including using related known facts, the relationship between addition and subtraction, and decomposing a number leading to a ten.	<b>1.OA.B.3</b>
	<b>M.1.2.6</b>	Explain the meaning of the equal sign and determine if subtraction equations are true or false.	<b>1.OA.D.7</b>
	<b>M.1.2.7</b>	Determine the unknown whole number in a subtraction equation relating three whole numbers and	<b>1.OA.D.8</b>

		produce the unknown number in an equation to make the equation true.	

**Academic Vocabulary:** Balanced

**Content Vocabulary:** Difference, subtraction, missing number, equal sign, make a ten, decompose, number bond

<b>M.1.3</b>	Students will demonstrate number sense of numbers 0-120 by counting, representing amounts with written numbers, and showing number patterns in skip counting.		
	<b>Students will...</b>		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.1.3.1</b>	Count to 120, starting at any number less than 120.	<b>1.NBT.A.1</b>
	<b>M.1.3.2</b>	Read and write numbers to 120 and represent a number of objects with a written number.	<b>1.NBT.A.1</b>
	<b>M.1.3.3</b>	Count by 10s to 120.	
	<b>M.1.3.4</b>	Count by 5s to 120.	
	<b>M.1.3.5</b>	Count by 2s to 120.	

**Academic Vocabulary:** Pattern, represent

**Content Vocabulary:** Number, skip-counting, count

<b>M.1.4</b>	Students will analyze the place value of two-digit numbers, to determine the meaning of digits in two-digit numbers and compare numbers.		
	<b>Students will...</b>		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.1.4.1</b>	Identify a group of two digits placed together as a two-digit number and explain that they are composed of ten and ones.	<b>1.NBT.2</b>
	<b>M.1.4.2</b>	Convert a group of ten and explain that the number 10 can be thought of as a bundle of ten ones called a “ten.”	<b>1.NBT.B.2a</b>
	<b>M.1.4.3</b>	Explain the numbers 11-19 are composed of a ten and ones.	<b>1.NBT.B.2b</b>
	<b>M.1.4.4</b>	Explain the numbers 10, 20, 30, 40, 50, 60, 70, 80, and 90 refer to one, two, three, four, five, six, seven, eight, or nine tens and 0 ones.	<b>1.NBT.B.2c</b>
	<b>M.1.4.5</b>	Compare two two-digit numbers based on the meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$ , $=$ , and $<$ .	<b>1.NBT.B.3</b>

**Academic Vocabulary:** Analyze, Identify, Explain, Compare

**Content Vocabulary:** Tens and ones, two-digit, greater than, less than, equal

<b>M.1.5</b>	Students will apply addition and subtraction strategies to add and subtract within 100.		
	<b>Students will...</b>		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.1.5.1</b>	Explain that in adding two-digit	<b>1.NBT.C.4</b>

		numbers, one adds tens and tens, ones and ones and sometimes it is necessary to compose a ten.	
	<b>M.1.5.2</b>	Add a two-digit number to a one-digit number within 100 using strategies to include concrete models, drawings, place value, and the relationship between addition and subtraction.	1.NBT.C.4
	<b>M.1.5.3</b>	Relate strategies used in solving addition problems to a written method and explain the reasoning used.	1.NBT.C.4
	<b>M.1.5.4</b>	Given a two-digit number, mentally find 10 more or 10 less than the number without having to count and explain the reasoning used and apply this to adding a two-digit number and a multiple of ten	1.NBT.C.5
	<b>M1.5.5</b>	Subtract, within the range 10-90, multiples of 10 from multiples of 10 using concrete models, drawings, place value, and properties of operations.	1.NBT.C.6
	<b>M.1.5.6</b>	Relate strategies used in solving subtraction problems to a written method and explain the strategy used.	1.NBT.C.6

**Academic Vocabulary:** Count, explain, reason, apply

**Content Vocabulary:** Tens and ones, two-digit, place value, add, subtract, mental math, place value, sum, difference

<b>M.1.6</b>	Students will use analog and digital clocks to write and tell time and identify and count collections of coins and bills up to \$1.00.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>

	<b>M.1.6.1</b>	Identify the hour hand and minute hand on an analogue clock.	
	<b>M.1.6.2</b>	Tell and write time in hours on analogue and digital clocks.	<b>1.MD.B.3</b>
	<b>M.1.6.3</b>	Tell and write time in half hours on analogue and digital clocks.	<b>1.MD.B.3</b>
	<b>M.1.6.4</b>	Identify the value of a penny, nickel, dime, and quarter.	
	<b>M.1.6.5</b>	Count the value of like-combinations of pennies, nickels, dimes, and quarters up to \$1.00 using the cents symbol.	
	<b>M.1.6.6</b>	Count the value of unlike-combinations of pennies, nickels, dimes, and quarters up to \$1.00 using the cent symbol.	
	<b>M.1.6.7</b>	Identify a dollar bill and its value, using the dollar symbol.	

**Academic Vocabulary:** Identify, count

**Content Vocabulary:** Clock, time, hour hand, minute hand, analogue, digital, penny, nickel, dime, quarter, dollar bill

<b>M.1.7</b>	Students will compare, order, and measure the lengths of objects using other objects and nonstandard units of measure.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.1.7.1</b>	Compare and order the lengths of three objects.	<b>1.MD.A.1</b>
	<b>M.1.7.2</b>	Compare the lengths of two objects indirectly by using a third object.	<b>1.MD.A.1</b>

	<b>M.1.7.3</b>	State the length of an object as a whole number of length units by laying multiple copies of a shorter object end to end with no gaps or overlaps.	<b>1.MD.A.2</b>
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**Academic Vocabulary:** Compare, order

**Content Vocabulary:** length, measure, long, short

<b>M.1.8</b>	Students will distinguish between defining and non-defining attributes, compose two-dimensional and three-dimensional shapes, and partition two-dimensional shapes into equal shares.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.1.8.1</b>	Distinguish between defining attributes and non defining attributes of shapes.	<b>1.G.A.1</b>
	<b>M.1.8.2</b>	Build and draw shapes to possess defining attributes.	<b>1.G.A.1</b>
	<b>M.1.8.3</b>	Compose two-dimensional shapes (to include rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) to create a composite shape and compose new shapes from the composite shape.	<b>1.G.A.2</b>
	<b>M.1.8.4</b>	Compose three-dimensional shapes to include cubes, rectangular prisms,, cones, and cylinders to create a composite shape and compose new shapes from the composite shape.	<b>1.G.A.2</b>
	<b>M.1.8.5</b>	Describe a whole as two of, or four of, the equal shares and understand that decomposing shapes into equal shares creates smaller shares.	<b>1.G.A.3</b>

	<b>M.1.8.6</b>	Partition circles and rectangles into two and four equal shares, describing the shares using halves, fourths, and quarters	<b>1.G.A.3</b>
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**Academic Vocabulary:** Distinguish, build, draw, compose, describe

**Content Vocabulary:** Defining attribute, non defining attribute, two-dimensional shapes, rectangle, square, trapezoid, triangle, half-circle, and quarter-circle, composite, three-dimensional shapes, cube, rectangular prism,, cone, and cylinder

<b>M.1.9</b>	Students will organize, represent, and interpret data in tally charts and pictographs and use the data to ask and answer questions to include how many in each category and how many more and how many less.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.1.9.1</b>	Organize, represent, and interpret data with up to three categories using a tally chart.	<b>1.MD.C.4</b>
	<b>M.1.9.2</b>	Ask and answer questions about the total number of data points in a tally chart.	<b>1.MD.C.4</b>
	<b>M.1.9.3</b>	Organize, represent, and interpret data with up to three categories using a pictograph.	<b>1.MD.C.4</b>
	<b>M.1.9.4</b>	Ask and answer questions about the total number of data points in a pictograph.	<b>1.MD.C.4</b>

**Academic Vocabulary:** Organize, represent, interpret, category, ask, answer

**Content Vocabulary:** Data, tally chart, pictograph



**2nd Grade  
Outcomes and Components**

<b>Course Purpose:</b>	<b>Students will apply place value concepts to the base-ten system in working with multi-digit numbers. Students will select and apply strategies to develop fluency with addition and subtraction within 100.</b>
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**Outcomes and Components:**

<b>M.2.1</b>	Students will show patterns in the counting sequence with skip counting and use place value to read, write, and compare numbers to 1,000.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.2.1.1</b>	Skip count by 100s, 10s, 5s, and 2s within 1,000.	<b>2.NBT.A.2</b>
	<b>M.2.1.2</b>	Explain that 100 can be thought of as ten tens called a “hundred.”	<b>2.NBT.A.1a</b>
	<b>M.2.1.3</b>	Explain that numbers 100, 200, 300, 400, 500, 600, 700, 800, and 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds and 0 tens and 0 ones.	<b>2.NBT.A.1b</b>
	<b>M.2.1.4</b>	Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form.	<b>2.NBT.A.3</b>
	<b>M.2.1.5</b>	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$ , $=$ , and $<$ symbols to record the results of comparisons.	<b>2.NBT.A.4</b>

<b>Academic Vocabulary:</b> Explain, read, write, compare
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<b>Content Vocabulary:</b> Skip count, hundreds, tens, ones, base-ten, standard form, expanded
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form, greater than, less than, equal to.

<b>M.2.2</b>	Students will apply multiple strategies to solve addition problems within 100.		
	Students will..		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.2.2.1</b>	Add fluently* within 100 using, including situations with regrouping, strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	<b>2.NBT.B.5</b>
	<b>M.2.2.2</b>	Add up to four two-digit numbers, including situations with regrouping, using strategies based on place value and properties of operations.	<b>2.NBT.B.6</b>
	<b>M.2.2.3</b>	Solve one- and two-step word problems,* including situations with regrouping, using drawings and equations involving situations of adding to and putting together with symbols for missing addends.	<b>2.OA.A.1</b>
	<b>M.2.2.4</b>	Explain why addition strategies work, using place value and the properties of operations.	<b>2.NBT.B.9</b>

**Academic Vocabulary:** Solve, explain, strategy

**Content Vocabulary:** Add, regroup, place value, operation, subtract, word problem, equation

<b>M.2.3</b>	Students will apply multiple strategies to solve subtraction problems within 100.		
	Students will..		

Pacing Instruct/Assess	Component Code	Component	Standard(s)
	<b>M.2.3.1</b>	Subtract fluently* within 100, including situations with regrouping, using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	<b>2.NBT.B.5</b>
	<b>M.2.3.2</b>	Use subtraction within 100 to solve one- and two-step word problems* by using drawings and equations to represent the problem involving situations of taking from, taking apart, and comparing with unknowns in all positions with a symbol for the unknown number. Include situations with regrouping.	<b>2.OA.A.1</b>
	<b>M.2.3.3</b>	Explain why subtraction strategies work, using place value and the properties of operations.	<b>2.NBT.B.9</b>

**Academic Vocabulary:** Solve, explain, strategy

**Content Vocabulary:** Subtract, regroup, place value, addition, word problem, equation, operation

<b>M.2.4</b>	Students will apply multiple strategies to solve addition and subtraction problems within 1,000.		
	Students will...		
Pacing Instruct/Assess	Component Code	Component	Standard(s)
	<b>M.2.4.1</b>	Add and subtract within 1,000 to include three-digit numbers using concrete models or drawings and strategies based on place value, (regrouping hundreds, tens and ones	<b>2.NBT.B.7</b>

		as needed) properties of operations, and/or the relationship between addition and subtraction.	
	<b>M.2.4.2</b>	Understand that in subtracting three digit numbers, one subtracts hundreds and hundreds, tens and tens, ones and ones and sometimes it is necessary to decompose tens or hundreds.	<b>2.NBT.B.7</b>
	<b>M.2.4.3</b>	Relate strategies used in solving addition and subtraction problems within 1,000 to a written method.	<b>2.NBT.B.7</b>

**Academic Vocabulary:** Understand, relate, concrete model

**Content Vocabulary:** Add, subtract, regroup

<b>M.2.5</b>	Students will add and subtract fluently with 20 and add and subtract 10 or 100 mentally within 1,000.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.2.5.1</b>	Add fluently all sums of two one-digit numbers within 20 fluently using mental strategies. Memorize all sums of one-digit numbers.	<b>2.OA.B.2</b>
	<b>M.2.5.2</b>	Add 10 or 100 mentally to a given number 100-900.	<b>2.NBT.B.8</b>
	<b>M.2.5.3</b>	Subtract fluently within 20 using mental strategies.	<b>2.OA.B.2</b>
	<b>M.2.5.4</b>	Subtract 10 or 100 mentally from a given number 100-900.	<b>2.NBT.B.8</b>

**Academic Vocabulary:** Mental strategy

**Content Vocabulary:** Add, sum, subtract, difference

<b>M.2.6</b>	Students will analyze equal groups of objects to gain foundations for multiplication.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.2.6.1</b>	Determine whether a group of up to 20 objects has an odd or even number of members by pairing objects or counting them by 2s.	<b>2.OA.C.3</b>
	<b>M.2.6.2</b>	Write an equation to express an even number as a sum of two equal addends.	<b>2.OA.C.3</b>
	<b>M.2.6.3</b>	Use addition and write an equation to find and express the total number of objects arranged in a 5 by 5 rectangular array.	<b>2.OA.C.4</b>
	<b>M.2.6.4</b>	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	<b>2.G.A.2</b>

**Academic Vocabulary:** Even, odd, pair, array, row, column, rectangular, partition

**Content Vocabulary:** addends, sum, equal, Array, row, column, partition

<b>M.2.7</b>	Students will read and write time using a.m. and p.m. from analog and digital clocks to the nearest five minutes and solve word problems involving money.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>

	<b>M.2.7.1</b>	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	<b>2.MD.C.7</b>
	<b>M.2.7.2</b>	Represent a given value of money with different collections of coins and dollar bills \$1.00 and over.	<b>2.MD.C.8</b>
	<b>M.2.7.3</b>	Solve word problems* involving dollar bills, quarters, dimes, nickels, and pennies using the dollar and cent signs appropriately.	<b>2.MD.C.8</b>

**Academic Vocabulary:** Dollar sign, cent sign, word problems, represent,

**Content Vocabulary:** addition, subtraction, analog clocks, time, skip counting, a.m., p.m., quarter, nickel, dime, penny,

<b>M.2.8</b>	Students will measure and estimate lengths in standard units and solve problems involving lengths.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.2.8.1</b>	Measure the length of an object accurately by selecting and using appropriate measurement tools to include rulers, yardsticks, meter sticks, and measuring tapes.	<b>2.MD.A.1</b>
	<b>M.2.8.2</b>	Compare the measurements of one object using two different units of measure (ex: a pencil measures 4 inches or 12 centimeters) and describe how the measurements relate to the size of the unit chosen.	<b>2.MD.A.2</b>
	<b>M.2.8.3</b>	Estimate the length of an object using inches, feet, centimeters, and meters.	<b>2.MD.A.3</b>
	<b>M.2.8.4</b>	Measure to compare lengths between	<b>2.MD.A.4</b>

		two objects to determine how much longer one object is than another and record the differences using a standard length unit.	
	<b>M.2.8.5</b>	Solve addition and subtraction word problems* within 100 involving length by using drawings and equations with a symbol for the unknown number to represent the problem.	<b>2.MD.B.5</b>
	<b>M.2.8.6</b>	Create a number line with equally spaced points corresponding to the numbers 0, 1, 2,... and represent whole-number sums within 100.	<b>2.MD.B.6</b>

**Academic Vocabulary:** Inches, centimeters, meters, word problems,

**Content Vocabulary:** Ruler, measuring tape, yardstick, meter stick, lengths, objects, record, addition, subtraction, number line.

<b>M.2.9</b>	Students will represent data, including length data, using line plots, pictographs, and bar graphs.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.2.9.1</b>	Draw a pictograph to represent a data set with up to four categories.	<b>2.MD.D.10</b>
	<b>M.2.9.2</b>	Draw a bar graph to represent a data set with up to four categories and use the data to solve simple put-together, take-apart, and compare problems.	<b>2.MD.D.10</b>
	<b>M.2.9.3</b>	Measure the lengths of several objects and display data by making a line plot/dot plot where the horizontal scale is marked off in whole-number	<b>2.MD.D.9</b>

		units.	
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**Academic Vocabulary:** Draw, represent, category, display, compare

**Content Vocabulary:** Pictograph, data, bar graph, measure, length, line plot/dot plot, horizontal, scale, unit

<b>M.2.10</b>	Students will analyze two-dimensional and three-dimensional shapes for their attributes and use shapes to explore equal shares.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.2.10.1</b>	Identify angles in two-dimensional shapes and faces in three-dimensional shapes.	
	<b>M.2.10.2</b>	Identify and draw shapes with specified attributes including given number of angles or equal faces to include triangles, quadrilaterals, pentagons, hexagons, and cubes.	<b>2.G.A.1</b>
	<b>M.2.10.3</b>	Decompose circles and rectangles into equal shares and describe the shares using the words halves, thirds, half of, third of, etc.	<b>2.G.A.3</b>
	<b>M.2.10.4</b>	Describe the whole of a circle or rectangle as two halves, three thirds, or four fourths.	<b>2.G.A.3</b>
	<b>M.2.10.5</b>	Explain that equal shares of identical wholes do not need to have the same shape.	<b>2.G.A.3</b>

**Academic Vocabulary:** Identify, draw, decompose, describe, explain

**Content Vocabulary:** Angle, two-dimensional, shape, three-dimensional, attribute, face, vertex, triangle, quadrilateral, pentagon, hexagon, cube, circle, rectangle, equal share, half, third, fourth

**3rd Grade  
Outcomes and Components**

<b>Course Purpose:</b>	<b>Students will use multiplication and division strategies and the relationship between multiplication and division to solve problems within 100.</b>
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**Outcomes and Components:**

<b>M.3.1</b>	Students will round, estimate, add, and solve problems within 1,000 using a variety of strategies.		
	Students will...		
<b>Pacing Instruct/Assess</b>	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.1.1</b>	Read and write numbers up to 10,000 to include expanded, standard, and word form.	
	<b>M.3.1.2</b>	Identify number patterns and use the properties of operation to explain patterns.	<b>3.OA.D.9</b>
	<b>M.3.1.3</b>	Round to the nearest 10 or 100 using place value.	<b>3.NBT.A.1</b>
	<b>M.3.1.4</b>	Estimate sums within 1,000.	
	<b>M.3.1.5</b>	Add within 1,000 fluently* using a variety of strategies to include mental math and place value.	<b>3.NBT.A.2</b>
	<b>M.3.1.6</b>	Add within 1,000 fluently using properties of operations.	<b>3.NBT.A.2</b>
	<b>M.3.1.7</b>	Use strategies to solve addition problems that include money and coins.	

<b>Academic Vocabulary:</b>
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**Content Vocabulary:** add, round, estimate, commutative property of addition, associative property of addition, distributive property of addition, patterns, expanded form, standard form, base 10, word form, place value

<b>M.3.2</b>	Students will estimate, subtract, and solve problems within 1,000 using a variety of strategies.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.2.1</b>	Estimate differences within 1,000.	
	<b>M.3.2.2</b>	Subtract within 1,000 fluently* using a variety of strategies to include mental math, place value, combine place value, and the relationship between addition and subtraction.	<b>3.NBT.A.2</b>
	<b>M.3.2.3</b>	Use strategies to solve subtraction problems that include money and coins.	

**Academic Vocabulary:**

**Content Vocabulary: estimate, subtract, place value, combine place value, addition, subtraction, money, coins**

<b>M.3.3</b>	Students will read, create, and interpret picture graphs, bar graphs, and line plots.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.3.1</b>	Organize data to include tally tables and frequency tables.	
	<b>M.3.3.2</b>	Read, create, and interpret a scaled	<b>3.MD.B.3</b>

		picture graph with several categories.	
	<b>M.3.3.3</b>	Read, create, and interpret a scaled bar graph with several categories.	<b>3.MD.B.3</b>
	<b>M.3.3.4</b>	Read and interpret a line plot/dot plot.	
	<b>M.3.3.5</b>	Measure lengths of objects to the nearest quarter of an inch.	<b>3.MD.B.4</b>
	<b>M.3.3.6</b>	Use measurement data to create a line plot/dot plot showing increments of whole numbers, halves, and quarters of an inch.	<b>3.MD.B.4</b>
	<b>M.3.3.7</b>	Solve one- and two-step problems using data presented in graphs to include how many more and how many less.	<b>3. MD.B.3</b>

**Academic Vocabulary:** read, create, interpret

**Content Vocabulary:** data, tally tables, frequency tables, category, scale, bar graph, picture graph, line plot, measure, quarter of an inch, fourth of an inch

<b>M.3.4</b>	Students will represent and solve problems involving multiplication using multiplication strategies and properties.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.4.1</b>	Interpret products of whole numbers and represent equal groups with a multiplication equation.	<b>3.OA.A.1</b>
	<b>M.3.4.2</b>	Relate repeated addition to multiplication and show how addition relates to equal groups.	
	<b>M.3.4.3</b>	Demonstrate skip counting by like	

		multiples on a number line.	
	<b>M.3.4.4</b>	Draw an array to represent a multiplication problem.	<b>3.OA.A.3</b>
	<b>M.3.4.5</b>	Apply properties of operations as strategies to multiply including commutative, associative, and distributive.	<b>3.OA.B.5</b>
	<b>M.3.4.6</b>	Determine the unknown factor or product in a multiplication equation.	<b>3.OA.A.4</b>
	<b>M.3.4.7</b>	Solve and model word problems* within 100 in situations including equal groups, arrays, and measurement quantities using equations with a symbol for the unknown number.	<b>3.OA.A.3</b>
	<b>M.3.4.8</b>	Multiply fluently within 144.	<b>3.OA.C.7</b>

**Academic Vocabulary:** interpret

**Content Vocabulary:** equal groups, skip counting, repeated addition, array, multiplication,

<b>M.3.5</b>	Students will represent and solve problems involving division using division strategies and properties.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.5.1</b>	Relate multiplication and division to show division as an unknown factor problem.	<b>3.OA.B.6</b> <b>3.OA.C.7</b>
	<b>M.3.5.2</b>	Demonstrate division as repeated subtraction with or without the use of a number line.	
	<b>M.3.5.3</b>	Explain and model division using strategies for example size of equal	<b>3.OA.A.2</b>

		groups, number of equal groups, and arrays.	
	<b>M.3.5.4</b>	Solve and model division word problems* involving equal groups, arrays, and measurement quantities using equations with a symbol to represent the unknown number.	<b>3.OA.A.3</b>
	<b>M.3.6.2</b>	Divide fluently within 144.	<b>3.OA.C.7</b>
	<b>M.3.6.3</b>	Multiply one-digit whole numbers by multiples of 10 using strategies of place value and properties of operations.	

**Academic Vocabulary:** Relate, demonstrate, explain, model

**Content Vocabulary:** Divide, repeated subtraction, factor, equal group, array, equation, symbol

<b>M.3.7</b>	Students will solve multi-step word problems using the four operations.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.7.1</b>	Solve two-step word problems* using the four operations.	<b>3.OA.D.8</b>
	<b>M.3.7.2</b>	Represent word problems* using equations with a letter/variable standing for the unknown quantity.	<b>3.OA.D.8</b>
	<b>M.3.7.3</b>	Check and justify work using mental math or estimation.	<b>3.OA.D.8</b>
	<b>M.3.7.4</b>	Identify and explain patterns of an addition or multiplication table using properties of operations.	<b>3.OA.D.9</b>

**Academic Vocabulary:** solve, represent, identify, explain

**Content Vocabulary:** four operations, patterns, properties of operations

<b>M.3.8</b>	Students will determine the area of two-dimensional shapes and apply concepts of area measurement.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.8.2</b>	Show that a unit square is a square with side lengths of 1 unit and find the area of a plane figure (rectangle or square) by covering it with square units.	<b>3.MD.C.5.a</b> <b>3.MD.C.5.b</b>
	<b>M.3.8.3</b>	Use a unit square to measure area by counting unit squares including square cm., square m., square in., square ft., and improvised units.	<b>3.MD.C.6</b> <b>3.MD.C.5.a</b>

**Academic Vocabulary:** Show, determine

**Content Vocabulary:** Area, length, width, height, perimeter, square unit, unit square, inches, centimeters, feet, yards, meters.

<b>M.3.9</b>	Students will calculate area using unit squares and the operations of multiplication and addition in real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.8.2</b>	Show that a unit square is a square with side lengths of 1 unit and find the	<b>3.MD.C.5.a</b> <b>3.MD.C.5.b</b>

		area of a plane figure (rectangle or square) by covering it with square units.	
	<b>M.3.8.3</b>	Use a unit square to measure area by counting unit squares including square cm., square m., square in., square ft., and improvised units.	<b>3.MD.C.6</b> <b>3.MD.C.5.a</b>
	<b>M.3.9.1</b>	Find the area of a rectangle using square tiles and show that the area would be equivalent by multiplying the side lengths and apply to real world context.	<b>3.MD.C.7.a</b>
	<b>M.3.9.2</b>	Multiply side lengths of rectangles to find the area in mathematical and real world contexts.	<b>3.MD.C.7.b</b>
	<b>M.3.9.3</b>	Find the area of a shape by breaking it down (decompose) into smaller shapes and then adding those areas to find the total area.	<b>3.MD.C.7.d</b>
	<b>M.3.9.4</b>	Use an area model with tiling to show that the distributive property can produce two areas that are equivalent ( $a$ and $(b + c)$ is equivalent to $a \times b$ and $a \times c$ ).	<b>3.MD.C.7.c</b>

**Academic Vocabulary:** Show, use, find, model

**Content Vocabulary:** Area, length, width, height, perimeter, square unit, unit square, inches, centimeters, feet, yards, meters, decompose, equivalent, distributive property

<b>M.3.10</b>	Students will calculate the perimeter of two-dimensional figures and distinguish between linear and area measures.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>

	<b>M.3.10.1</b>	Define and Find the perimeter of a two-dimensional figure given the side lengths.	<b>3.MD.D.8</b>
	<b>M.3.10.2</b>	Find an unknown side length of a two-dimensional figure.	<b>3.MD.D.8</b>
	<b>M.3.10.3</b>	Solve problems in mathematical and real word context involving rectangles with the same perimeter and different areas or the same area and different perimeters.	<b>3.MD.D.8</b>

**Academic Vocabulary:** Define, find, calculate, unknown, solve

**Content Vocabulary:** perimeter, two-dimensional, side length, rectangle, area

<b>M.3.11</b>	Students will express parts of a whole as a fraction and place them on a number line.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.11.1</b>	Divide shapes into $b^*$ parts with equal areas. Express the area of each part as a unit fraction of the whole recording the amount as $1/b^*$ .	<b>3.G.A.2</b> <b>3.NF.A.1</b>
	<b>M.3.11.2</b>	Show fraction $a/b^*$ as the quantity formed by $a$ parts of size $1/b^*$ .	<b>3.NF.A.1</b>
	<b>M.3.11.3</b>	Create a number line from zero to one, partition it into $b^*$ equal parts, and label the unit fractions.	<b>3.NF.A.2.a</b>
	<b>M.3.11.4</b>	Place the fraction $a/b^*$ on a number line divided into $b^*$ equal parts.	<b>3.NF.A.2.b</b>
		$*b$ limited to 2,3,4,6,and 8	

**Academic Vocabulary:** Show, create

**Content Vocabulary:** Equal part, unit fraction, whole

<b>M.3.12</b>	Students will compare fractions with denominators of 2,3,4,6, and 8 using $>$ , $<$ , $=$ to record the results.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.12.1</b>	Identify equivalent fractions through use of concrete models and drawings.	<b>3.NF.A.3.a</b>
	<b>M.3.12.2</b>	Identify equivalent fractions through use of a number line.	<b>3.NF.A.3.a</b>
	<b>M.3.12.3</b>	Generate equivalent fractions with denominators of 2,3,4,6, and 8 and explain why the fractions are equivalent.	<b>3.NF.A.3.b</b>
	<b>M.3.12.4</b>	Rename whole numbers as improper fractions, for example $3=3/1$ .	<b>3.NF.A.3.c</b>
	<b>M.3.12.5</b>	Convert one whole as a fraction with the same numerator and denominator and convert a fraction with the same numerator and denominator into one whole, for example $1 = 4/4$ and $4/4=1$ .	<b>3.NF.A.3.c</b>
	<b>M.3.12.6</b>	Compare two fractions that refer to the same whole with the same numerator or the same denominator by reasoning about their size, using $>$ , $<$ , and $=$ to record the results.	<b>3.NF.A.3.d</b>

**Academic Vocabulary:** Identify, generate, rename, convert, compare, concrete model

**Content Vocabulary:** Equivalent, denominator, numerator

<b>M.3.13</b>	Students will show that different shapes may share attributes and can be placed into different categories.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.13.1</b>	Identify and describe attributes of polygons to include quadrilaterals and triangles.	<b>3.G.A.1</b>
	<b>M.3.13.2</b>	Classify and draw two-dimensional polygons to include rhombuses, rectangles, and squares.	<b>3.G.A.1</b>
	<b>M.3.13.3</b>	Sort examples and non examples of quadrilaterals based on characteristics and justify choices.	<b>3.G.A.1</b>
	<b>M.3.13.4</b>	Draw a quadrilateral that does not fit into a given category.	<b>3.G.A.1</b>
	<b>M.3.13.5</b>	Identify polygons within a prism and pyramid.	

**Academic Vocabulary:** Identify, classify, sort, draw, describe, characteristic

**Content Vocabulary:** Attribute, polygon, quadrilateral, triangle, rhombus, rectangle, square, prism, pyramid

<b>M.3.14</b>	Students will solve problems involving elapsed time, liquid volumes, and masses of objects.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.3.14.1</b>	Tell and write time to the nearest minute, using a.m. and p.m.	<b>3.MD.A.1</b>

	<b>M.3.14.2</b>	Measure time intervals and use time intervals to solve problems including addition and subtraction of time intervals in minutes.	<b>3.MD.A.1</b>
	<b>M.3.14.3</b>	Measure and estimate liquid volumes in liters using standard units.	<b>3.MD.A.2</b>
	<b>M.3.14.4</b>	Measure and estimate masses of objects using standard units of grams and kilograms.	<b>3.MD.A.2</b>
	<b>M.3.14.5</b>	Solve and model one-step word problems* involving masses or volumes using addition, subtraction, multiplication, and division.	<b>3.MD.A.2</b>
	<b>M.3.14.6</b>	Show the number of inches in a foot, the number of feet in a yard, and number of centimeters in a meter.	

**Academic Vocabulary:** tell, solve, model

**Content Vocabulary:** intervals, mass, volume, grams, kilograms, liters, A.M., P.M. elapsed time, minute, measure

**4th Grade  
Outcomes and Components**

<b>Course Purpose:</b>	Students will use the four operations in multi-step processes, including two-digit by two-digit multiplication, long division, and equivalent fractions.
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<b>M.4.1</b>	Students will use place value concepts to compare, order, round, add, and subtract numbers to 1,000,000.		
	Students will...		
<b>Pacing Instruct/Assess</b>	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.1.1</b>	Use the 10 to 1 relationship to compare the value of a digit to the value of the digit to its right.	<b>4.NBT.A.1</b>
	<b>M.4.1.2</b>	Read and write numbers of up to 1,000,000 using standard, expanded, and word form.	<b>4.NBT.A.2</b>
	<b>M.4.1.3</b>	Compare and order numbers up to 1,000,000 using $>$ , $<$ , and $=$ .	<b>4.NBT.A.2</b>
	<b>M.4.1.4</b>	Rename numbers with regrouping.	
	<b>M.4.1.5</b>	Round numbers up to 1,000,000 to any place.	<b>4.NBT.A.3</b>
	<b>M.4.1.6</b>	Add numbers up to 1,000,000 using the standard algorithm fluently.	<b>4.NBT.B.4</b>
	<b>M.4.1.7</b>	Subtract numbers up to 1,000,000 using the standard algorithm fluently.	<b>4.NBT.B.4</b>

<b>Academic Vocabulary:</b> Relationship, rename, order
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<b>Content Vocabulary:</b> Compare, round, regroup, add, subtract, standard algorithm
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<b>M.4.2</b>	Students will solve multiplicative comparison word problems.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.2.1</b>	Restate multiplication equations as comparisons and verbal statements as equations.	<b>4.OA.A.1</b>
	<b>M.4.2.2</b>	Distinguish between additive comparisons and multiplicative comparisons.	<b>4.OA.A.2</b>
	<b>M.4.2.3</b>	Create an equation that uses a variable to solve a problem.	<b>4.OA.A.3</b>
	<b>M.4.2.4</b>	Multiply or divide to solve word problems* involving multiplicative comparisons.	<b>4.OA.A.3</b>

**Academic Vocabulary:** Restate, distinguish, create, solve

**Content Vocabulary:** Equation, additive comparison, multiplicative comparison

<b>M.4.3</b>	Students will multiply one-digit numbers by four-digit numbers using various strategies.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.3.1</b>	Multiply one-digit numbers by tens, hundreds, and thousands.	<b>4.NBT.A.1</b>
	<b>M.4.3.2</b>	Estimate products by rounding the multi-digit number.	<b>4.OA.A.3</b>
	<b>M.4.3.3</b>	Multiply a one-digit number by a two digit number using the distributive property.	<b>4.NBT.B.5</b>

	<b>M.4.3.4</b>	Multiply a one-digit number by a number of up to four digits using expanded form and area models.	<b>4.NBT.B.5</b>
	<b>M.4.3.5</b>	Multiply a one-digit number by a number of up to four digits using partial products.	<b>4.NBT.B.5</b>
	<b>M.4.3.6</b>	Multiply a one-digit number by a number of up to four digits using regrouping.	<b>4.NBT.B.5</b>

**Academic Vocabulary:** Estimate

**Content Vocabulary:** Digit, tens, hundreds, thousand, round, distributive property, expanded form, area model, partial product, regroup

<b>M.4.4</b>	Students will multiply two-digit numbers by two-digit numbers using various strategies.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.4.1</b>	Multiply two digit numbers by tens, hundreds, and thousands.	<b>4.NBT.A.1</b>
	<b>M.4.4.2</b>	Estimate products by rounding both two-digit numbers.	<b>4.OA.A.3</b>
	<b>M.4.4.3</b>	Multiply two-digit by two-digit numbers using area models.	<b>4.NBT.B.5</b>
	<b>M.4.4.4</b>	Multiply two-digit by two-digit numbers using partial products.	<b>4.NBT.B.5</b>
	<b>M.4.4.5</b>	Multiply two-digit by two-digit numbers using regrouping.	<b>4.NBT.B.5</b>

**Academic Vocabulary:**

**Content Vocabulary:** two digit

<b>M.4.5</b>	Students will use the area and perimeter formulas to find unknown sides of rectangles and solve problems with real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.5.1</b>	Use the perimeter formula to find the length or width of unknown sides of a rectangle (including squares).	<b>4.MD.A.3</b>
	<b>M.4.5.2</b>	Use the area formula to find the length of unknown sides in a rectangle (including squares).	<b>4.MD.A.3</b>
	<b>M.4.5.3</b>	Select and apply the area and perimeter formulas in word problems* including real world contexts.	<b>4.MD.A.3</b>

**Academic Vocabulary:** Use, select, apply

**Content Vocabulary:** Perimeter formula, length, width, rectangle, square, area formula

<b>M.4.6</b>	Students will divide four-digit numbers by one-digit numbers using various strategies.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.6.1</b>	Estimate quotients using multiples.	
	<b>M.4.6.2</b>	Demonstrate remainders using manipulatives.	<b>4.OA.A.3</b>
	<b>M.4.6.3</b>	Interpret the remainder in a word problem*.	<b>4.OA.A.3</b>

	<b>M.4.6.4</b>	Divide tens, hundreds, and thousands by one digit numbers.	<b>4.NBT.A.1</b>
	<b>M.4.6.5</b>	Divide using rectangular arrays or area models to represent the distributive property.	<b>4.NBT.B.6</b>
	<b>M.4.6.6</b>	Divide using partial quotients.	<b>4.NBT.B.6</b>
	<b>M.4.6.7</b>	Divide using regrouping.	<b>4.NBT.B.6</b>

**Academic Vocabulary:** Estimate, demonstrate, interpret, represent

**Content Vocabulary:** Quotient, multiple, array, distributive property

<b>M.4.7</b>	Students will list multiples and factors of numbers up to 100 and determine if a given number is a common factor or multiple of two numbers.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.7.1</b>	Identify and list multiples of numbers up to 100.	<b>4.OA.B.4</b>
	<b>M.4.7.2</b>	Use divisibility rules for the numbers 2,3,5,6,9,and 10 to determine if a number is a factor of a given number.	
	<b>M.4.7.3</b>	Identify and list factors and/or factor pairs for numbers up to 100.	<b>4.OA.B.4</b>
	<b>M.4.7.4</b>	Identify numbers as prime or composite.	<b>4.OA.B.4</b>
	<b>M.4.7.5</b>	Find common factors of two given numbers and common multiples of two given numbers.	
	<b>M.4.7.6</b>	Identify and generate number patterns.	<b>4.OA.C.5</b>

**Academic Vocabulary:** Identify, find, use, common,

**Content Vocabulary:** Multiples, divisibility rules, factor, prime, composite

<b>M.4.8</b>	Students will classify, construct, and measure angles.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.8.1</b>	Identify, name, and draw points, rays, lines, line segments, and angles and identify them in figures.	<b>4.G.A.1</b>
	<b>M.4.8.2</b>	Classify types of angles, to include acute, right, obtuse, and straight angles.	<b>4.G.A.1</b>
	<b>M.4.8.3</b>	Identify angles as a fractional part of a circle, recognizing that a circle contains 360 degrees.	<b>4.MD.C.5.a</b> <b>4.MD.C.5.b</b>
	<b>M.4.8.4</b>	Use a protractor to measure and draw angles of a given measure.	<b>4.MD.C.6</b>
	<b>M.4.8.5</b>	Solve addition and subtraction problems to find the measure of an unknown angle within an angle using a symbol for the unknown angle.	<b>4.MD.C.7</b>

**Academic Vocabulary:** Identify, classify, solve, measure

**Content Vocabulary:** Figure, point, ray, line, line segment, angle, acute, right, obtuse, straight, fractional part, protractor

<b>M.4.9</b>	Students will classify triangles and quadrilaterals and identify and draw lines of symmetry.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.9.1</b>	Identify and draw parallel, perpendicular, and intersecting lines.	<b>4.G.A.1</b>
	<b>M.4.9.2</b>	Identify and draw lines of symmetry.	<b>4.G.A.3</b>
	<b>M.4.9.3</b>	Classify triangles by angles, to include right, acute, and obtuse.	<b>4.G.A.2</b>
	<b>M.4.9.4</b>	Sort and classify quadrilaterals by the presence or absence of parallel and perpendicular lines, to include squares, rectangles, parallelograms, rhombuses, and trapezoids.	<b>4.G.A.2</b>
	<b>M.4.9.5</b>	Identify and generate shape patterns, using problem solving strategies (for example make a list or draw a picture).	<b>4.OA.C.5</b>

**Academic Vocabulary:** Identify, draw, classify, presence, absence

**Content Vocabulary:** Line of symmetry, right triangle, acute triangle, obtuse triangle, parallel, perpendicular, square, rectangle, parallelogram, rhombus, trapezoid

<b>M.4.10</b>	Students will compare and order fractions with different numerators and different denominators.		
	Students will...		
Pacing	<b>Component</b>	<b>Component</b>	<b>Standard(s)</b>

Instruct/Assess	Code		
	<b>M.4.10.1</b>	Use fractional models to prove that a fraction $a/b$ is equal to a fraction $(a \times n)/(b \times n)$ .	<b>4.NF.A.1</b>
	<b>M.4.10.2</b>	Identify and generate equivalent fractions.	<b>4.NF.A.1</b>
	<b>M.4.10.3</b>	Create common numerators and denominators.	<b>4.NF.A.2</b>
	<b>M.4.10.4</b>	Find the simplest form of a fraction.	
	<b>M.4.10.5</b>	Use benchmark fractions to compare fractions.	<b>4.NF.A.2</b>
	<b>M.4.10.6</b>	Compare and order fractions with different numerators and different denominators using $>$ , $<$ , $=$ , stating that fractions cannot be compared when they refer to different wholes.	<b>4.NF.A.2</b>
		* $b$ limited to 2,3,4,5,6,8,10,12,100	

**Academic Vocabulary:** Use, identify, create, compare, order, different

**Content Vocabulary:** common numerator, common denominator, simplest form, benchmark fraction, greater than, less than, equal to

<b>M.4.11</b>	Students will add and subtract fractions with like denominators and solve word problems with real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.11.1</b>	Use manipulatives or models to demonstrate that addition and subtraction are joining or taking away parts of the same whole.	<b>4.NF.B.3.a</b>

	<b>M.4.11.2</b>	Decompose fractions in more than one way as the sum of fractions with the same denominator and justify the decomposition as an equation.	<b>4.NF.B.3.b</b>
	<b>M.4.11.3</b>	Add fractions with like denominators.	
	<b>M.4.11.4</b>	Subtract fractions with like denominators.	
	<b>M.4.11.5</b>	Solve word problems* involving addition and subtraction of fractions with like denominators, using fraction models and equations.	<b>4.NF.B.3.d</b>
		*denominators limited to 2,3,4,5,6,8, 10,12,100	

**Academic Vocabulary:** Demonstrate, model, justify

**Content Vocabulary:** Decompose, sum

<b>M.4.12</b>	Students will add and subtract mixed numbers with like denominators.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.12.1</b>	Convert improper fractions to mixed numbers.	
	<b>M.4.12.2</b>	Convert mixed numbers into improper fractions.	
	<b>M.4.12.3</b>	Add and subtract mixed numbers with like denominators by turning the mixed numbers into fractions.	<b>4.NF.B.3.C</b>
	<b>M.4.12.4</b>	Add and subtract mixed numbers using the properties of operations.	<b>4.NF.B.3.C</b>

		*denominators limited to 2,3,4,5,6,8, 10, 12, 100	
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**Academic Vocabulary:** Convert

**Content Vocabulary:** Improper fraction, mixed number

<b>M.4.13</b>	Students will multiply a fraction by a whole number and solve word problems with real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.13.1</b>	Identify the unit fraction of which a fraction is a multiple.	<b>4.NF.B.4.a</b>
	<b>M.4.13.2</b>	Use models to demonstrate how to multiply a fraction by a whole number.	<b>4.NF.B.4.b</b>
	<b>M.4.13.3</b>	Multiply a fraction by a whole number using the method $n \times (a/b) = (n \times a)/b$ .	<b>4.NF.B.4.b</b>
	<b>M.4.13.4</b>	Solve word problems* requiring the multiplication of a fraction by a whole number for example, using visual fraction models and equations.	<b>4.NF.B.4.c</b>
		*b limited to 2,3,4,5,6,8,10,12,100	

**Academic Vocabulary:**

**Content Vocabulary:**

<b>M.4.14</b>	Students will connect denominators of 10 and 100 to tenths and hundredths to convert, compare, and order decimals.
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	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.14.1</b>	Show fractions with denominators of 10s and 100 as equivalent fractions and add those fractions.	<b>4.NF.C.5</b>
	<b>M.4.14.2</b>	Write money (dimes and pennies) as a decimal.	
	<b>M.4.14.3</b>	Convert fractions with denominators of 10 and 100 into decimals and record the conversion using decimal notation.	<b>4.NF.C.6</b>
	<b>M.4.14.4</b>	Compare using $<$ , $>$ , and $=$ and order decimals that refer to the same whole and justify their reasoning.	<b>4.NF.C.7</b>

**Academic Vocabulary:**

**Content Vocabulary:** Decimal

<b>M.4.15</b>	Students will solve measurement word problems involving various real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.15.1</b>	Generate conversion tables converting from larger units to smaller units for metric and customary units of length, mass, capacity, and weight.	<b>4.MD.A.1</b>
	<b>M.4.15.2</b>	Generate conversion tables converting from larger units to smaller units for customary units of length, mass, capacity, weight, and time.	<b>4.MD.A.1</b>

	<b>M.4.15.3</b>	Solve word problems* using elapsed time and money.	<b>4.MD.A.2</b>
	<b>M.4.15.4</b>	Use the four operations to solve word problems* concerning distances, liquid volumes, and masses of objects including problems involving simple fractions and conversions from larger units to smaller units.	<b>4.MD.A.2</b> <b>4.OA.A.3</b>

**Academic Vocabulary:** Generate

**Content Vocabulary:** Conversion table, length, mass, capacity, weight

<b>M.4.16</b>	Students will interpret, select, and create a visual display to show a set of data.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.4.16.1</b>	Determine from bar graph, circle graph, line graph, or line plot which type of graph to use for a data set.	
	<b>M.4.16.2</b>	Create a line graph to display a set of data.	
	<b>M.4.16.3</b>	Create a line plot/dot plot to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{8}$ ) and solve addition and subtraction problems using the line plot.	<b>4.MD.B.4</b>



**5th Grade  
Outcomes and Components**

<b>Course Purpose:</b>	<b>Students will solve problems involving fractions, decimals, and volume using the four operations.</b>
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**Outcomes and Components:**

<b>M.5.1</b>	Students will compare and round decimals to the thousandths place and justify the patterns when multiplying numbers by powers of ten using exponents.		
	Students will...		
<b>Pacing Instruct/Assess</b>	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.1.1</b>	Compare the value of digits in a number using the 10 to 1 relationship of a place value and its place value to the right and the 1/10 relationship of a place value and its place value to the left.	<b>5.NBT.A.1</b>
	<b>M.5.1.2</b>	Read and write decimals to thousandths using standard, written, and expanded form.	<b>5.NBT.A.3.a</b>
	<b>M.5.1.3</b>	Round decimals to any place, including examples of rounding money.	<b>5.NBT.A.4</b>
	<b>M.5.1.4</b>	Compare two decimals to the thousandths, using $>$ , $<$ , or $=$ .	<b>5.NBT.A.3.b</b>
	<b>M.5.1.5</b>	Explain the patterns in zeros when multiplying a number by a power of ten.	<b>5.NBT.A.2</b>
	<b>M.5.1.6</b>	Read and write numbers using exponents in exponent and word form.	<b>5.NBT.A.2</b>

<b>Academic Vocabulary:</b> Compare, explain
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**Content Vocabulary:** Value, decimal, thousandths, hundredths, tenths, standard form, written form, expanded form, power of ten

<b>M.5.2</b>	Students will write, evaluate, and compare numerical expressions.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.2.1</b>	Write expressions that record calculations of numbers (given a written description).	<b>5.OA.A.2</b>
	<b>M.5.2.2</b>	Evaluate expressions using parentheses, brackets, and braces.	<b>5.OA.A.1</b>
	<b>M.5.2.3</b>	Compare how two numeric expressions are related without evaluating the expression. (i.e. recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$ , without having to calculate the indicated sum or product)	<b>5.OA.A.1</b>

**Academic Vocabulary:** Evaluate

**Content Vocabulary:** Parentheses, brackets, braces, eexpression

<b>M.5.3</b>	Students will divide 4-digit dividends by 2-digit divisors and illustrate or explain the calculation.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.3.1</b>	Divide a number by a two-digit divisor	<b>5.NBT.B.6</b>

		using the distributive property, such as rectangular arrays or area models.	
	<b>M.5.3.2</b>	Divide a number by a two-digit divisor using partial products and explain the reasoning.	<b>5.NBT.B.6</b>
	<b>M.5.3.3</b>	Divide a number by a two-digit divisor using the standard algorithm and explain the reasoning.	<b>5.NBT.B.6</b>

**Academic Vocabulary:** Illustrate, model, evaluate, number, explain

**Content Vocabulary:** Division, dividend, divisor, quotient, remainder, inverse operation, compatible numbers, factor, product, multiples, partial quotient, place value

<b>M.5.4</b>	Students will add and subtract decimals to the hundredths place and solve problems involving real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.4.1</b>	Add and subtract decimals to the hundredths place using concrete models, drawings, and the relationship between addition and subtraction, to include problems involving money.	<b>5.NBT.B.7</b>
	<b>M.5.4.2</b>	Add decimals to the hundredths place and explain the strategy used.	<b>5.NBT.B.7</b>
	<b>M.5.4.3</b>	Subtract decimals to hundredths place and explain the strategy used.	<b>5.NBT.B.7</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>5.M.5</b>	Students will multiply decimals by whole numbers and decimals by decimals explaining the reasoning behind their solution.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.5.1</b>	Multiply decimals by whole numbers and decimals using manipulatives, models, or pictures to illustrate the solution and justify the reasoning.	<b>5.NBT.B.7</b>
	<b>M.5.5.2</b>	Multiply decimals by whole numbers and decimals by decimals using the distributive property.	<b>5.NBT.B.7</b>
	<b>M.5.5.3</b>	Multiply decimals by whole numbers and decimals by decimals using expanded form and/or partial products.	<b>5.NBT.B.7</b>
	<b>M.5.5.4</b>	Multiply decimals by whole numbers and decimals by decimals using the standard algorithm.	<b>5.NBT.B.7</b>
	<b>M.5.5.5</b>	Solve word problems* involving the multiplication of money.	

**Academic Vocabulary:****Content Vocabulary:**

<b>5.M.6</b>	Students will divide decimals by whole numbers using a variety of strategies and explain the reasoning behind their solution.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.6.1</b>	Divide decimals by a whole number divisor using powers of 10.	<b>5.NBT.A.2</b>
	<b>M.5.6.2</b>	Divide decimals by whole numbers using concrete models or drawings and explain the reasoning used.	<b>5.NBT.B.7</b>
	<b>M.5.6.3</b>	Divide decimals by whole numbers and use the standard algorithm.	
	<b>M.5.6.4</b>	Solve problems involving the division of money.	

**Academic Vocabulary:**

**Content Vocabulary:**

<b>5.M.7</b>	Students will add and subtract fractions and mixed numbers with unlike denominators.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.7.1</b>	Find the least common multiple for a pair of numbers, with both numbers being less than or equal to 12.	<b>6.NS.B.4</b>
	<b>M.5.7.2</b>	Find the greatest common factor of two numbers within the range of 1-100.	<b>6.NS.B.4</b>

	<b>M.5.7.3</b>	Demonstrate that a fraction is a division of the numerator by the denominator by solving problems that require the division of a whole number leading to a fractional answer.	<b>5.NF.B.3</b>
	<b>M.5.7.4</b>	Add fractions with unlike denominators using equivalent fractions and simplify the sum.	<b>5.NF.A.1</b>
	<b>M.5.7.5</b>	Subtract fractions with unlike denominators using equivalent fractions and simplify the difference.	<b>5.NF.A.1</b>
	<b>M.5.7.6</b>	Add and subtract mixed numbers with different denominators by renaming the mixed numbers as equivalent fractions and simplify the sum or difference.	<b>5.NF.A.1</b>
	<b>M.5.7.7</b>	Use benchmark fractions and number sense to estimate and assess the reasonability of answers.	<b>5.NF.A.2</b>

**Academic Vocabulary:** like/unlike, list, less than, greater than, equal to

**Content Vocabulary:** Common multiple, denominator, difference, equivalent fractions, mixed number, numerator, simplest form, sum, benchmark, common denominator, factor, improper fraction

<b>5.M.8</b>	Students will multiply fractions by fractions and fractions by whole numbers and explain the relationship of the product to the factors.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.8.1</b>	Find the product with and without a model of $(\mathbf{a/b}) \times \mathbf{q}$ as both $\mathbf{a}$ parts of a partition of $\mathbf{q}$ into $\mathbf{b}$ equal parts and as the result of $\mathbf{a} \times \mathbf{q} \div \mathbf{b}$ .	<b>5.NF.B.4.a</b>

	<b>M.5.8.2</b>	Multiply a fraction by a fraction and simplify the product.	<b>5.NF.B.4.a</b>
	<b>M.5.8.3</b>	Demonstrate and explain when multiplying a fraction by an improper fraction the product is greater than the initial fraction and when multiplying a fraction by a fraction less than one, the product is less than the initial fraction.	<b>5.NF.B.5.a</b> <b>5.NF.B.5.b</b>
	<b>M.5.8.4</b>	Relate and explain why multiplying $(a \times n)/(b \times n)$ results in an equivalent fraction.	<b>5.NF.B.5.b</b>
	<b>M.5.8.5</b>	Find the area of a rectangle with fractional side lengths by tiling it and compare it to the area found by multiplying it by the side lengths.	<b>5.NF.B.4.b</b>
	<b>M.5.8.6</b>	Solve problems with real world contexts involving the multiplication of fractions and mixed numbers.	<b>5.NF.B.6</b>

**Academic Vocabulary:** Evaluate, solve, analyze, model, demonstrate, explain, greater than/less than/equal, compare

**Content Vocabulary:** Common factor, denominator, equivalent fractions, mixed number, numerator, simplest form, factor, improper fraction, product

<b>5.M.9</b>	Students will divide unit fractions by non-zero whole numbers and whole numbers by unit fractions and solve problems involving real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.9.1</b>	Divide a unit fraction by a non-zero whole number and interpret the division, for example by modeling or	<b>5.NF.B.7.a</b>

		creating a story to explain the calculation.	
	<b>M.5.9.2</b>	Divide a whole number by a unit fraction and interpret the division, for example by modeling or creating a story to explain the calculation.	<b>5.NF.B.7.b</b>
	<b>M.5.9.3</b>	Solve problems with real world contexts that require the division of unit fractions and whole numbers, for example using visual fraction models and equations to represent the problem.	<b>5.NF.B.7.c</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>5.M.10</b>	Students will locate and plot points in quadrant one of the coordinate plane and interpret the values of the points in real life and mathematical contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.10.1</b>	Identify the x and y axes in the first quadrant of the coordinate plane.	<b>5.G.A.1</b>
	<b>M.5.10.2</b>	Plot ordered pairs in quadrant one of the coordinate plane by understanding that the x-coordinate represents the horizontal distance from zero on the x-axis and the y-coordinate represents the vertical distance from zero on the y-axis.	<b>5.G.A.1</b>
	<b>M.5.10.3</b>	Plot points in the first quadrant of the	<b>5.G.A.2</b>

		coordinate plane to represent real world and mathematical situations and interpret values in the context of the situation.	
	<b>M.5.10.4</b>	Create an input/output table for two given rules/situations and graph the corresponding ordered pairs on the coordinate plane.	<b>5.OA.B.3</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>5.M.11</b>	Students will convert between smaller units of measure to larger units with the customary and/or metric system and create line plots to display data to solve multi-step, real world problems.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.11.1</b>	Convert standard metric within the given system, converting from smaller units to larger units.	<b>5.MD.A.1</b>
	<b>M.5.11.2</b>	Convert customary measurements within the given system, converting from smaller units to larger units.	<b>5.MD.A.1</b>
	<b>M.5.11.3</b>	Solve multi-step problems with real world contexts that require	<b>5.MD.A.1</b>

		conversions of standard metric and customary measurements.	
	<b>M.5.11.4</b>	Create a line plot/dot plot to display a set of measurement data in fractional units ( $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{8}$ ). and	<b>5.MD.B.2</b>
	<b>M.5.11.5</b>	Use the four operations to solve problems involving data displaying measurement data in fractional units.	<b>5.MD.B.2</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>5.M.12</b>	Students will classify two dimensional figures by their properties into hierarchical categories.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.12.1</b>	Identify attributes of two-dimensional figures by showing that attributes of a category apply to all subcategories of that category.	<b>5.G.B.3</b>
	<b>M.5.12.2</b>	Classify two-dimensional figures into hierarchical categories.	<b>5.G.B.4</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>5.M.13</b>	Students will calculate the volume of right rectangular prisms using various strategies, including problems with real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.13.1</b>	Construct a right rectangular prism using unit cubes and measure the volume by counting the unit cubes using different units, including cubic centimeters, cubic inches, cubic feet, and improvised units.	<b>5.MD.C.3.a</b> <b>5.MD.C.3.b</b> <b>5.MD.C.4</b>
	<b>M.5.13.2</b>	Calculate volume in models and representations by counting unit cubes and using different units, including cubic centimeters, cubic inches, cubic feet, and improvised units.	<b>5.MD.C.4</b>
	<b>M.5.13.3</b>	Find the volume of a right rectangular prism by packing it with unit cubes and compare the result to the volume using the formula.	<b>5.MD.C.5.A</b>
	<b>M.5.13.4</b>	Use the associative property when calculating volume.	<b>5.MD.C.5.A</b>
	<b>M.5.13.5</b>	Calculate the volume of right rectangular prisms using the formulas $V=lwh$ and $V=Bh$ , with whole number edge lengths	<b>5.MD.C.5.B</b>
	<b>M.5.13.7</b>	Calculate the volume of solid figures composed of two non-overlapping right rectangular prisms by explaining that volume is additive and apply to real world contexts.	<b>5.MD.C.5.C</b>

**Academic Vocabulary:**

**Content Vocabulary:**

<b>5.M.14</b>	Students will multiply multi-digit whole numbers fluently using the standard algorithm and apply to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.5.14.1</b>	Multiply four-digit whole numbers by one-digit whole numbers fluently using the standard algorithm.	<b>5.NBT.B.5</b>
	<b>M.5.14.2</b>	Multiply two-digit whole numbers and three-digit whole numbers by two-digit numbers fluently using the standard algorithm.	<b>5.NBT.B.5</b>
	<b>M.5.14.3</b>	Multiply three-digit whole numbers and four-digit whole numbers by three-digit numbers fluently using the standard algorithm.	<b>5.NBT.B.5</b>

**Academic Vocabulary:**

**Content Vocabulary:**

**6th Grade  
Outcomes and Components**

<b>Course Purpose:</b>	Students will calculate and apply operations with positive rational numbers. Students will relate multiplication and division to ratios and proportional relationships. Students will construct and evaluate expressions and generate and solve equations.
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**Outcomes and Components:**

<b>M.6.1</b>	Students will calculate sums, differences, products, and quotients fluently with positive rational numbers and apply these operations to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.1.1</b>	Divide fractions and mixed numbers, with and without the use of visual models.	<b>6.NS.A.1</b>
	<b>M.6.1.2</b>	Add and subtract fractions and mixed numbers fluently with the standard algorithms.	
	<b>M.6.1.3</b>	Multiply fractions and mixed numbers fluently with the standard algorithms.	

**Academic Vocabulary:**

**Content Vocabulary:** add, subtract, multiply, divide, sum, difference, product, quotient, fractions, numerator, denominator, simplify

<b>M.6.2</b>	Students will calculate sums, differences, products, and quotients fluently with positive decimals and apply these operations to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>

	<b>M.6.2.1</b>	Add and subtract decimals with the standard algorithms fluently to include money examples and counting up to check.	<b>6.NS.B.3</b>
	<b>M.6.2.2</b>	Multiply positive decimals with the standard algorithms fluently to include money examples.	<b>6.NS.B.3</b>
	<b>M.6.2.3</b>	Divide multi-digit whole numbers fluently with the standard algorithm.	<b>6.NS.B.2</b>
	<b>M.6.2.4</b>	Divide positive decimals with the standard algorithms fluently to include money examples.	<b>6.NS.B.3</b>
	<b>M.6.2.5</b>	Convert a fraction to a decimal using long division and determine if the decimal terminates or repeats.	<b>7.NS.A.2.D</b>

**Academic Vocabulary:**

**Content Vocabulary:** add, subtract, multiply, divide, sum, difference, product, quotient, decimals,

<b>M.6.3</b>	Students will compare and order rational numbers to show the relationship between the number system and the real world.		
	Students will..		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.3.1</b>	Define integers and describe quantities using integers in real world situations, to include explaining the meaning of zero for real world situation.	<b>6.NS.C.5</b>
	<b>M.6.3.2</b>	Compare and order rational numbers on a vertical and horizontal number line.	<b>6.NS.C.7.a</b> <b>6.NS.C.6.c</b>

	<b>M.6.3.3</b>	Define rational numbers and graph them on horizontal and vertical number lines.	
	<b>M.6.3.4</b>	Identify that opposites are the same distance from zero and identify the opposite of the opposite.	<b>6.NS.C.6.a</b>
	<b>M.6.3.5</b>	Graph integers on a horizontal and vertical number line.	<b>6.NS.C.6.c</b>
	<b>M.6.3.6</b>	Compare and order integers with and without a number line.	<b>6.NS.C.6.c</b>
	<b>M.6.3.7</b>	Define absolute value and apply the definition to real world contexts of integers and rational numbers.	<b>6.NS.C.7.c</b> <b>6.NS.C.7.d</b>

**Academic Vocabulary:**

**Content Vocabulary:** integers, rational numbers, absolute value, number line

<b>M.6.4</b>	Students will represent different locations on the coordinate plane in all four quadrants and apply this to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.4.1</b>	Identify parts of the coordinate plane to include the x and y axis, the origin, and the four quadrants.	
	<b>M.6.4.2</b>	Identify signs of numbers in ordered pairs as indicating locations in quadrants in the coordinate plane and graph points in all four quadrants with integers and rational numbers.	<b>6.NS.C.6.b</b> <b>6.NS.C.6.c</b>
	<b>M.6.4.3</b>	Use absolute value to find horizontal	<b>6.NS.C.8</b>

		and vertical distances between coordinates in all four quadrants.	
	<b>M.6.4.4</b>	Identify signs of coordinates to recognize the points are reflected across the x and y axes and reflect points across the x and y axis.	<b>6.NS.C.6.b</b>
	<b>M.6.4.5</b>	Graph and connect the coordinates for the vertices to create a polygon in the coordinate plane and find the side lengths.	<b>6.G.A.3</b>

**Academic Vocabulary:**

**Content Vocabulary:** coordinate plane, quadrants, x axis, y axis, coordinate, reflection, origin

<b>M.6.5</b>	Students will generate and compare ratios to solve problems and apply to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.5.1</b>	Define and write ratios between two quantities, to include writing equivalent ratios.	<b>6.RP.A.1</b> <b>6.RP.A.3.a</b>
	<b>M.6.5.2</b>	Create tables of equivalent ratios with whole numbers, find missing values in the table, and compare ratios.	<b>6.RP.A.3.a</b>
	<b>M.6.5.3</b>	Plot equivalent ratios from a table on a coordinate plane.	<b>6.RP.A.3.a</b>
	<b>M.6.5.4</b>	Identify and calculate unit rates.	<b>6.RP.A.2</b>
	<b>M.6.5.5</b>	Solve unit rate problems including unit prices and constant speed.	<b>6.RP.A.3.b</b>
	<b>M.6.5.6</b>	Convert within the customary and the metric system and convert between	<b>6.RP.A.3.d</b>

		systems using ratio reasoning.	
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**Academic Vocabulary:** identify, calculate, convert

**Content Vocabulary:** ratio, rate, unit rate, proportion, part to whole, part to part, whole to part

<b>M.6.6</b>	Students will solve percent problems and use proportional reasoning to solve problems in real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.6.1</b>	Define and model on a hundreds grid a percent as a ratio per 100.	
	<b>M.6.6.2</b>	Convert fractions to percents, decimals to percents, and percents to decimals and fractions.	<b>6.RP.A.3.c</b>
	<b>M.6.6.3</b>	Solve problems to find the percent given the part/whole, find the whole given the part/percent, and find the part given the percent/whole.	<b>6.RP.A.3.c</b>

**Academic Vocabulary:** convert, solve, equation

**Content Vocabulary:** hundreds grid, percents, fractions, decimals

<b>M.6.7</b>	Students will write numeric expressions to represent quantities.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>

	<b>M.6.7.1</b>	Write and evaluate numerical expressions involving whole number exponents.	<b>6.EE.A.1</b>
	<b>M.6.7.2</b>	Evaluate numerical expressions using the order of operations.	<b>6.EE.A.2.c</b>
	<b>M.6.7.3</b>	Write an expression given a written description.	<b>6.EE.A.2.a</b>

**Academic Vocabulary:** evaluate, identify

**Content Vocabulary:** variable, expression, terms, like term, distributive property, exponent, base, coefficient, sum, difference, quotient, product

<b>M.6.8</b>	Students will write algebraic expressions to represent quantities and determine if expressions are equivalent.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.8.1</b>	Evaluate algebraic expressions given specific values, using the order of operations.	<b>6.EE.A.2.c</b>
	<b>M.6.8.2</b>	Identify if two expressions are equivalent by substituting a value for the variables in both expressions.	<b>6.EE.A.4</b>
	<b>M.6.8.3</b>	Generate equivalent expressions using the distributive property.	<b>6.EE.A.3</b>
	<b>M.6.8.4</b>	Generate equivalent expressions by combining like terms.	<b>6.EE.A.3</b>
	<b>M.6.8.5</b>	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, and coefficient) and describe a part of an expression as a single entity and a sum of two terms.	<b>6.EE.A.2.b</b>

	<b>M.6.8.6</b>	Use variables to represent any unknown number in a specified set and write expressions when solving a real world or mathematical problem.	<b>6.EE.B.6</b> <b>6.EE.A.2.a</b>
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<b>M.6.9</b>	Students will write and solve equations to solve real world problems. Students will define inequalities and graph the solution set on a number line.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.9.1</b>	Write and solve one-step equations in the form $x+p=q$ and $x-p=q$ where $x$ , $p$ , and, $q$ are non negative rational numbers.	<b>6.EE.B.7</b>
	<b>M.6.9.2</b>	Write and solve one-step equations in the form $px=q$ $x/p = q$ ,where $x$ , $p$ , and $q$ are non negative rational numbers.	<b>6.EE.B.7</b>
	<b>M.6.9.3</b>	Determine if a value is a solution to an equation using substitution.	<b>6.EE.B.5</b>
	<b>M.6.9.4</b>	Define an inequality as a solution set that has infinitely many solutions to include inequalities $<$ , $>$ , $\leq$ , $\geq$ and write an inequality given a real world context.	<b>6.EE.B.8</b>
	<b>M.6.9.5</b>	Graph an inequality on a number line.	<b>6.EE.B.8</b>

**Academic Vocabulary:** determine, define,

**Content Vocabulary:** inequality, one-step equation, inequality symbols, infinitely, solve, inverse operations

<b>M.6.10</b>	Students will calculate area, surface area, and volume using formulas and apply this to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.10.1</b>	Calculate the area of triangles (right and other) quadrilaterals, (square, rectangle, parallelogram, trapezoid, rhombus) by decomposing/composing into triangles and other shapes and apply these techniques for real word contexts.	<b>6.G.A.1</b>
	<b>M.6.10.2</b>	Calculate area using the formulas for square, rectangle, trapezoid, parallelogram, triangle, and rhombus.	
	<b>M.6.10.3</b>	Use nets of rectangles and triangles to represent and find the surface area of 3-D figures and apply to real world contexts.	<b>6.G.A.4</b>
	<b>M.6.10.4</b>	Calculate the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge length and illustrate the volume is the same as it would be using the formula.	<b>6.G.A.2</b>
	<b>M.6.10.5</b>	Calculate the volume of a right rectangular prisms using the formula $V=lwh$ and $V=Bh$ , with fractional edge lengths and apply to real world contexts.	<b>6.G.A.2</b>

**Academic Vocabulary:** calculate, compose, decompose

**Content Vocabulary:** area, surface area , volume, triangle, rectangle, square, parallelogram, trapezoid, rhombus, right rectangular prism, unit cube, base, nets

<b>M.6.11</b>	Students will differentiate between independent and dependent variables to write an equation.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.11.1</b>	Define and use independent and dependent variables to represent independent and dependent quantities that change in relationship to one another.	<b>6.EE.C.9</b>
	<b>M.6.11.2</b>	Write an equation using variables including x and y and other variables based on the context of the problem.	<b>6.EE.C.9</b>
	<b>M.6.11.3</b>	List and graph ordered pairs given a table and describe the connection to the equation.	<b>6.EE.C.9</b>

**Academic Vocabulary:**

**Content Vocabulary:** independent variable, dependent variable, equation, variables

<b>M.6.12</b>	Students will calculate measures of center and spread.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>

	<b>M.6.12.1</b>	Define and identify statistical questions, non-statistical questions, and note that a statistical question anticipates variability.	<b>6.SP.A.1</b>
	<b>M.6.12.2</b>	Calculate the mean, median, mode, and range.	<b>6.SP.A.2</b>
	<b>M.6.12.3</b>	Define and calculate the Mean of Absolute Deviation (MAD).	

**Academic Vocabulary:**

**Content Vocabulary:** mean, median, mode, range, Mean Absolute Deviation (MAD), variability, measures of centers, measure of spread

<b>M.6.13</b>	Students will construct histograms, line plots, and box plots.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.13.1</b>	Create a line/dot plot.	<b>6.SP.B.4</b>
	<b>M.6.13.2</b>	Create a histogram.	<b>6.SP.B.4</b>
	<b>M.6.13.3</b>	Create a box and whisker plot.	<b>6.SP.B.4</b>
	<b>M.6.13.4</b>	Calculate interquartile range (IQR).	<b>6.SP.A.2</b>
	<b>M.6.13.5</b>	State the data being collected, the tools used to measure the data, the and number of observations reported on a line/dot plot and histogram.	<b>6.SP.B.5.a, 6.SP.B.5.b</b>

**Academic Vocabulary:**

**Content Vocabulary:** Interquartile Range (IQR), box plot, dot plot, histogram,

<b>M.6.14</b>	Students will analyze measures of center and variability of given data.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.6.14.1</b>	Identify and describe the center of data (mean and median) from a numerical set of data and a visual representation.	<b>6.SP.A.3, 6.SP.B.5.d</b>
	<b>M.6.14.2</b>	Identify and describe the variability of data (range, interquartile range (IQR), and mean absolute deviation (MAD)) from a numerical set of data and a visual representation.	<b>6.SP.A.3, 6.SP.B.5.d</b>
	<b>M.6.14.3</b>	Examine the distribution of the data to determine the shape.	<b>6.SP.A.2</b>
	<b>M.6.14.4</b>	Select the best measure of center (mean or median) and variability (IQR or MAD) from a given a set of numerical data. Describe any overall patterns and striking deviations from given sets of numerical data.	<b>6.SP.B.5.c</b>

**Academic Vocabulary:**

**Content Vocabulary:** mean, median, mode, range, Interquartile Range (IQR), Mean Absolute Deviation (MAD), box plot, dot plot, histogram, variability, measures of centers, measure of spread

**7th Grade  
Outcomes and Components**

<b>Course Purpose:</b>	Students will calculate and apply operations with rational numbers to solve real word problems. Students will apply algebraic concepts to
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	solve one-step and two-step equations with rational numbers and apply to real world contexts.
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**Outcomes and Components:**

<b>M.7.1</b>	Students will calculate sums and differences of integers and apply them to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.7.1.1</b>	Define rational numbers and relate them to whole numbers and integers. Define irrational numbers.	
	<b>M.7.1.2</b>	Describe situations in which opposite quantities make zero (opposites add to zero).	<b>7.NS.A.1.a</b> <b>7.NS.A.1.b</b>
	<b>M.7.1.3</b>	Add integers using a number line.	<b>7.NS.A.1.b</b>
	<b>M.7.1.4</b>	Define subtracting integers as adding the opposite and subtract integers using a number line by showing the distance is the absolute value of their difference.	<b>7.NS.A.1.c</b>
	<b>M.7.1.5</b>	Use integer rules to add and subtract integers and apply to real world contexts.	<b>7.NS.A.1.d</b>

<b>Academic Vocabulary:</b> define, apply
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<b>Content Vocabulary:</b> add, subtract, opposites, integers, rational numbers
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<b>M.7.2</b>	Students will calculate sums and differences of rational numbers and apply them to real world contexts.
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	Students will...		
Pacing Instruct/Assess	Component Code	Component	Standard(s)
	<b>M.7.2.1</b>	Apply integer rules to add rational numbers (fractions and mixed numbers) and apply to real world contexts.	<b>7.NS.A.1.d</b>
	<b>M.7.2.2</b>	Apply integer rules to add rational numbers (decimals) and apply to real world contexts.	<b>7.NS.A.1.d</b>
	<b>M.7.2.3</b>	Apply integer rules to subtract rational numbers (fractions and mixed numbers) and apply to real world contexts.	<b>7.NS.A.1.d</b>
	<b>M.7.2.4</b>	Apply integer rules to subtract rational numbers (decimals) and apply to real world contexts.	<b>7.NS.A.1.d</b>

<b>M.7.3</b>	Students will calculate products and quotients of integers and rational numbers and apply these rules to real world contexts.		
	Students will...		
Pacing Instruct/Assess	Component Code	Component	Standard(s)
	<b>M.7.3.1</b>	Relate the distributive property to formulate rules for multiplying integers (negative times a negative is a positive and a negative times a positive is a negative).	<b>7.NS.A.2.a</b>
	<b>M.7.3.2</b>	Use properties to multiply integers and rational numbers and apply to real world contexts.	<b>7.NS.A.2.a</b> <b>7.NS.2.A.c</b>
	<b>M.7.3.3</b>	Show that $\frac{-p}{q} = \frac{p}{-q} = -\left(\frac{p}{q}\right)$ are equal and divide integers and rational numbers using rules of integers.	<b>7.NS.A.2.b</b> <b>7.NS.2.A.c</b>
	<b>M.7.3.4</b>	Explain why zero cannot be the	<b>7.NS.A.2.b</b>

		divisor.	
	<b>M.7.3.5</b>	Solve problems involving addition, subtraction, multiplication, and division of integers and rational numbers involving real world contexts.	<b>7.NS.A.3</b> <b>7.EE.B.3</b>

**Academic Vocabulary:**

**Content Vocabulary: rational numbers, distributive property, integer rules**

<b>M.7.4</b>	Students will examine given relationships of multiple representations to determine if they are proportional.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.7.4.1</b>	Calculate unit rates including ratios of lengths, areas and other quantities measured in like or different units. Include better buy and complex fractions.	<b>7.RPA.1</b> <b>7.G.A.1</b>
	<b>M.7.4.2</b>	Calculate actual lengths and areas using a scale drawing by writing proportions.	<b>7.G.A.1</b>
	<b>M.7.4.3</b>	Reproduce a scale drawing using a different scale.	<b>7.G.A.1</b>
	<b>M.7.4.4</b>	Explain if two quantities are proportional by creating ratios from a table and determining if they are equal.	<b>7.RPA.2.a</b>
	<b>M.7.4.5</b>	Explain if two quantities are proportional by graphing them on a coordinate plane and looking for a straight line through the origin.	<b>7.RPA.2.a</b>

	<b>M.7.4.6</b>	Identify the constant of proportionality from a table, graph, equation, diagram, and verbal description.	<b>7.RPA.2.b</b>
	<b>M.7.4.7</b>	Write an equation to represent a proportional relationship	<b>7.RPA.2.c</b>
	<b>M.7.4.8</b>	Explain what a point $(x,y)$ of a proportional relationship means in terms of the situation, including $(0,0)$ and $(1,r)$ where $r$ is the unit rate.	<b>7.RPA.2.d</b>

**Academic Vocabulary:** determine, identify, explain, reproduce

**Content Vocabulary:** proportional relationship, constant of proportionality, unit rate, complex fraction, equation, scale drawing

<b>M.7.5</b>	Students will solve multistep percent problems using proportions and apply them to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.7.5.1</b>	Solve percent of change problems including percent increase and decrease.	<b>7.RPA.3</b>
	<b>M.7.5.2</b>	Calculate percent error.	<b>7.RPA.3</b>
	<b>M.7.5.3</b>	Calculate markups including tax, gratuity, fees, and commission.	<b>7.RPA.3</b>
	<b>M.7.5.4</b>	Calculate markdowns including sales and coupons.	<b>7.RPA.3</b>
	<b>M.7.5.5</b>	Solve percent problems involving simple interest.	<b>7.RPA.3</b>
	<b>M.7.5.6</b>	Write expressions involving percents in equivalent forms to determine how	<b>7.EE.A.2</b>

		quantities are related.	
	<b>M.7.5.7</b>	Solve multistep percent problems in real world contexts including markups, markdowns, commission, and simple interest.	<b>7.RP.A.3</b>

**Academic Vocabulary:** solve, calculate

**Content Vocabulary:** percent, percent change, percent increase, percent decrease, markup, tip, tax, fees, commission, markdown, discount, simple interest

<b>M.7.6</b>	Students will simplify expressions with rational numbers.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.7.6.1</b>	Define, add, and subtract linear expressions, including rational coefficients (combine like terms).	<b>7.EE.A.1</b>
	<b>M.7.6.2</b>	Use the distributive property to simplify linear expressions, including rational coefficients.	<b>7.EE.A.1</b>
	<b>M.7.6.3</b>	Factor linear expressions.	<b>7.EE.A.1</b>

**Academic Vocabulary:**

**Content Vocabulary:** simplify, linear expressions, distributive property, solve one step equations, two step equations

<b>M.7.7</b>	Students will write and solve equations with rational numbers to apply them to real world contexts.
	Students will...

Pacing Instruct/Assess	Component Code	Component	Standard(s)
	<b>M.7.7.1</b>	Write and fluently solve one step equations (add, subtract, multiply, and divide) involving rational coefficients and terms to solve problems in real world contexts, including defining the variable.	<b>7.EE.B.4</b>
	<b>M.7.7.2</b>	Write and fluently solve two step equations in the form $px + q = r$ and $p(x + q) = r$ where $p, q,$ and $r$ are rational numbers including real world contexts. Compare an algebraic solution to an arithmetic solution.	<b>7.EE.B.4.a</b>
	<b>M.7.7.3</b>	Write and solve two step equations in the form $\frac{x}{p} \pm r = q$ . Compare an algebraic solution to an arithmetic solution.	

**Academic Vocabulary:**

**Content Vocabulary:** simplify, linear expressions, distributive property, solve one step equations, two step equations

<b>M.7.8</b>	Students will define the variable to write and solve inequalities with rational numbers and interpret the solutions to real world contexts.		
	Students will...		
Pacing Instruct/Assess	Component Code	Component	Standard(s)
	<b>M.7.8.1</b>	Define the variable to write and solve one step inequalities, involving rational coefficients and terms, graph the solution set on a number line and interpret the context of the problem.	<b>7.EE.B.4</b>

	<b>M.7.8.2</b>	Define the variable to write and solve two step inequalities in the form $px + q > r$ and $px + q < r$ , graph the solution set on a number line, and interpret context in the problem.	<b>7.EE.B.4.b</b>
	<b>M.7.8.3</b>	Define the variable to write and solve two step inequalities in the form $px + qr \geq r$ , $px + q \leq r$ , $\frac{x}{p} \pm q > r$ , $\frac{x}{p} \pm q < r$ , $\frac{x}{p} \pm q \geq r$ , $\frac{x}{p} \pm q \leq r$ , graph the solution set on a number line, and interpret context in the problem.	<b>7.EE.B.4.b</b>

**Academic Vocabulary:** solve, interpret

**Content Vocabulary:** inequality, one step inequality, two step inequality, shaded region

<b>M.7.9</b>	Students will solve area, surface area, and volume problems including composite figures and apply it to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.7.9.1</b>	Create geometric shapes with given conditions (with ruler, protractor, and with technology) with a focus on constructing triangles from three measures of angles or sides and determine if the conditions form a unique triangle, more than one triangle, or no triangle.	<b>7.G.A.2</b>
	<b>M.7.9.2</b>	Identify three dimensional shapes and identify their edges, faces, vertices.	
	<b>M.7.9.3</b>	Identify and describe the cross section	<b>7.G.A.3</b>

		of right rectangular prisms and right rectangular pyramids.	
	<b>M.7.9.4</b>	Solve real world problems involving area of triangles, quadrilaterals, and polygons.	<b>7.G.B.6</b>
	<b>M.7.9.5</b>	Solve real world problems by calculating the surface area of cubes, rectangular prisms, and triangular prisms, including composite figures.	<b>7.G.B.6</b>
	<b>M.7.9.6</b>	Solve real world problems by calculating the volume of cubes, rectangular prisms, triangular prisms, including composite figures.	<b>7.G.B.6</b>

**Academic Vocabulary:** calculate

**Content Vocabulary:** cross section, face, edge, vertices, surface area, volume

<b>M.7.10</b>	Students will solve problems involving circles and apply it to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.7.10.1</b>	Identify parts of a circle including the center, radius, diameter, and circumference, to include identifying pi.	<b>7.G.B.4</b>
	<b>M.7.10.2</b>	State the formula for area of a circle and informally derive the formula for area of a circle.	<b>7.G.B.4</b>
	<b>M.7.10.3</b>	State the formula for circumference of a circle, calculate the circumference given the radius, and calculate the circumference given the diameter.	<b>7.G.B.4</b>

	<b>M.7.10.4</b>	Calculate the radius given the circumference and calculate the diameter given the circumference.	<b>7.G.B.4</b>
	<b>M.7.10.5</b>	Calculate the area given the radius and calculate the area given the diameter.	<b>7.G.B.4</b>
	<b>M.7.10.6</b>	Calculate the radius given the area and calculate the diameter given the area.	<b>7.G.B.4</b>
	<b>M.7.10.7</b>	Calculate the area given circumference and calculate the circumference given area.	<b>7.G.B.4</b>
	<b>M.7.10.8</b>	Calculate the area of composite figures including triangles, quadrilaterals, polygons, circles and semicircle.	<b>7.G.B.6</b>

**Academic Vocabulary:**

**Content Vocabulary:** center, diameter, radius, circumference ,circumference and area formulas

<b>M.7.11</b>	Students will analyze angle diagrams to solve multi-step problems.		
	Students will..		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.7.11.1</b>	Define the characteristics of complementary, supplementary, vertical, and adjacent angles.	<b>7.G.B.5</b>
	<b>M.7.11.2</b>	Identify complementary, supplementary, vertical, and adjacent angles from a diagram (separately and together).	<b>7.G.B.5</b>

	<b>M.7.11.3</b>	Use characteristics of angles in a multi-step problem to write and solve equations to find a missing angle from a diagram.	<b>7.G.B.5</b>
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**Academic Vocabulary:** calculate, solve

**Content Vocabulary:** complementary angles, supplementary angles, vertical angles, adjacent angles,

<b>M.7.12</b>	Students will compare data distributions and make inferences about the given populations.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.7.12.1</b>	Identify a sample of a population to include random samples and biased and state that random sampling techniques tend to produce representative samples and explain this given a sample.	<b>7.SP.A.1</b>
	<b>M.7.12.2</b>	Using given data, create inferences about a population with unknown characteristic of interest.	<b>7.SP.A.2</b>
	<b>M.7.12.3</b>	Generate multiple samples (of the same size) to make predictions.	<b>7.SP.A.2</b>
	<b>M.7.12.4</b>	Compare the means and compare the mean absolute deviations given two visual distributions line plots/dot plots) with similar variables.	<b>7.SP.B.3</b>
	<b>M.7.12.5</b>	Use measures of centers for numerical data to create inferences about the population.	<b>7.SP.B.4</b>
	<b>M.7.12.6</b>	Use measures of variability for numerical data to create inferences	

		about the population.	
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**Academic Vocabulary:** identify, compare, create, inferences

**Content Vocabulary:** populations, sample, random, biased, box plot, dot/line plot, measures of variability

<b>M.7.13</b>	Students will solve probability problems and create simulations to calculate probabilities.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.7.13.1</b>	Define the meaning of an experiment, event, trial, sample space, and outcome.	
	<b>M.7.13.2</b>	Interpret probability as the likelihood of the event occurring and it is identified as a number between zero and one. Note that a number closer to one has a greater chance of occurring, a probability of one half is as likely as not, and a number closer to zero has a smaller chance of occurring.	<b>7.SP.C.5</b>
	<b>M.7.13.3</b>	Calculate the theoretical probabilities of simple events, the complement of an event, and experimental probabilities.	
	<b>M.7.13.4</b>	Collect data (experimental probability) and approximate the probability of that event by making a prediction based on the collected data.	<b>7.SP.C.6</b>
	<b>M.7.13.5</b>	Develop a probability model (which may or may not be uniform) , use it to	<b>7.SP.C.7.a</b> <b>7.SP.C.7.b</b>

		find the probability of events, compare probabilities to the model, and explain any discrepancies.	
	<b>M.7.13.6</b>	Calculate probability of compound events using organized lists, tables, tree diagrams, and simulations.	<b>7.SP.C.8</b> <b>7.SP.C.8.b</b>
	<b>M.7.13.7</b>	Calculate the theoretical and experimental probability of a compound event as a fraction of outcomes in the sample space for which the event occurs.	<b>7.SP.C.8.a</b>
	<b>M.7.13.8</b>	Create and use a simulation to generate frequencies of compound events.	<b>7.SP.C.8.c</b>

**Academic Vocabulary:** create, calculate, interpret

**Content Vocabulary:** probability, sample space, event, trial, outcome, simulation

**8th Grade  
Outcomes and Components**

<b>Course Purpose:</b>	
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**Outcomes and Components:**

<b>M.8.1</b>	Students will construct and analyze transformations of congruent figures.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.1.1</b>	Construct translations with and without the use of algebraic representations and verify experimentally the properties to show that congruent figures are produced from the transformation (i.e. lines are taken to lines of the same length, line segments are taken to line segments of the same length, angles are taken to angles of the same measure, parallel lines are taken to parallel lines.)	<b>8.G.A.1.a 8.G.A.1.b 8.G.A.1.c 8.G.A.3</b>
	<b>M.8.1.2</b>	Construct reflections with and without the use of algebraic representations and verify experimentally the properties to show that congruent figures are produced from the transformation (i.e. lines are taken to lines of the same length, line segments are taken to line segments of the same length, angles are taken to angles of the same measure, parallel lines are taken to parallel lines.)	<b>8.G.A.1.a 8.G.A.1.b 8.G.A.1.c 8.G.A.3</b>
	<b>M.8.1.3</b>	Construct rotations with algebraic	<b>8.G.A.1.a</b>

		representations and verify experimentally the properties to show that congruent figures are produced from the transformation (i.e. lines are taken to lines of the same length, line segments are taken to line segments of the same length, angles are taken to angles of the same measure, parallel lines are taken to parallel lines.)	<b>8.G.A.1.b</b> <b>8.G.A.1.c</b> <b>8.G.A.3</b>
	<b>M.8.1.4</b>	Construct a two-dimensional figure and verify that it is congruent to another two-dimensional figure if the second is obtained from the first by a sequence of rotations, reflections, and translations.	<b>8.G.A.2</b>
	<b>M.8.1.5</b>	Describe a sequence of transformations given two congruent figures.	<b>8.G.A.2</b>

<b>M.8.2</b>	Students will construct and analyze transformations of similar figures.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.2.1</b>	Explain that dilations produce similar figures. ( i.e the ratio of the side measures of one two dimensional figure are proportional to the corresponding side measures of the other two dimensional figure and that angle measures are congruent)	
	<b>M.8.2.2</b>	Construct a two dimensional figure that is similar to another two dimensional figure if the second is obtained by a dilation.	<b>8.G.A.4</b>

	<b>M.8.2.3</b>	Describe the effects of dilation on a two dimensional figure using an algebraic representation to determine the new coordinates.	<b>8.G.A.3</b>
	<b>M.8.2.4</b>	Construct a two-dimensional figure to verify that a two-dimensional figure is similar to another two-dimensional figure if the second is obtained by a sequence of rotations, reflections, translations, and dilations.	<b>8.G.A.4</b>
	<b>M.8.2.5</b>	Describe a sequence that exhibits the similarity between two similar figures.	<b>8.G.A.4</b>

**Academic Vocabulary:** explain, construct, describe

**Content Vocabulary:** transformation, rotation, reflection, translation, dilation

<b>M.8.3</b>	Students will explain, interpret, and calculate slope.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.3.1</b>	Interpret the unit rate of a proportional relationship as the slope of a graph.	<b>8.EE.B.5</b>
	<b>M.8.3.2</b>	Explain why the slope, $m$ , is the same between any two points on a nonvertical line in the coordinate plane using similar triangles.	<b>8.EE.B.6</b>
	<b>M.8.3.3</b>	Calculate the rate of change using the slope formula.	<b>8.F.B.4</b>

**Academic Vocabulary:** explain, interpret, calculate

**Content Vocabulary:** slope, slope intercept form, rate of change

<b>M.8.4</b>	Students will analyze and graph proportional and nonproportional relationships and apply real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.4.1</b>	Graph a proportional and nonproportional relationship given an equation, table, and real world description.	<b>8.EE.B.5</b>
	<b>M.8.4.2</b>	Compare two proportional or nonproportional relationships represented in two different ways such as with a graph, equation, table, or verbal description. Include distance-time equation and distance-time graph.	<b>8.EE.B.5</b>
	<b>M.8.4.3</b>	Derive the equation for a proportional relationship using a graph as, $y=mx$ and derive the equation for a non proportional relationship using a graph, as $y=mx+ b$ .	<b>8.EE.B.6</b> <b>8.F.A.3</b>
	<b>M.8.4.4</b>	Calculate the rate of change and initial value given a table, graph, equation, or real world description.	<b>8.F.B.4</b>
	<b>M.8.4.5</b>	Interpret the rate of change and initial value for a real world situation given a table, graph, equation, or verbal description to construct a function.	<b>8.F.B.4</b>
	<b>M.8.4.6</b>	Rewrite an equation into slope intercept form.	

**Academic Vocabulary:** interpret, compare

**Content Vocabulary:** proportional relationship, non proportional relationship, slope intercept form, rate of change, initial value

<b>M.8.5</b>	Students will analyze multiple representations of functions and apply functions to real word contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.5.1</b>	State that a function is a rule that assigns each input exactly one output including graphs, mappings, tables.	<b>8.F.A.1</b>
	<b>M.8.5.2</b>	Identify graphs and equations that are linear and nonlinear functions including $y = mx + b$ where $b$ is zero and non-zero.	<b>8.F.A.3</b>
	<b>M.8.5.3</b>	Sketch a story graph that is a function given a verbal description.	<b>8.F.B.5</b>
	<b>M.8.5.4</b>	Analyze a graph where the function is increasing, decreasing, linear, or nonlinear and describe qualitatively the relationship between two quantities.	<b>8.F.B.5</b>
	<b>M.8.5.5</b>	Compare properties of two functions represented in different ways using a table, graph, equation and verbal description.	<b>8.F.A.2</b>

**Academic Vocabulary:** compare, analyze, identify, sketch

**Content Vocabulary:** function, mapping, linear function, nonlinear function, story graph

<b>M.8.6</b>	Students will investigate and use the Pythagorean Theorem to solve mathematical problems and problems in real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.6.1</b>	Explain a proof of the Pythagorean Theorem through an investigation.	<b>8.G.B.6</b>
	<b>M.8.6.2</b>	State the converse of the Pythagorean Theorem and explain whether or not a triangle is a right triangle based on given measurements.	<b>8.G.B.6</b>
	<b>M.8.6.3</b>	Solve for unknown side lengths of right triangles for two-dimensional figures using the Pythagorean Theorem.	<b>8.G.B.7</b>
	<b>M.8.6.4</b>	Solve for unknown side lengths of right triangles for three-dimensional figures using the Pythagorean Theorem.	<b>8.G.B.7</b>
	<b>M.8.6.5</b>	Calculate the distance between two points on a coordinate plane using the Pythagorean Theorem.	<b>8.G.B.8</b>
	<b>M.8.6.6</b>	Calculate the distance between two points using the distance formula.	

**Academic Vocabulary:** explain, state, calculate

**Content Vocabulary:** Pythagorean Theorem, Converse of the Pythagorean Theorem, distance formula

<b>M.8.7</b>	Students will determine the volume formula for three dimensional figures and use the formulas to calculate the volume of three dimensional figures in real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.7.1</b>	Write the formula for the volume of a cone and calculate the volume of a cone.	<b>8.G.C.9</b>
	<b>M.8.7.2</b>	Write the formula for the volume of a cylinder and calculate the volume of a cylinder.	<b>8.G.C.9</b>
	<b>M.8.7.3</b>	Write the formula for the volume of a sphere and calculate the volume of a sphere	<b>8.G.C.9</b>
	<b>M.8.7.4</b>	Calculate the volume of a figure composed of more than one three-dimensional shape.	

**Academic Vocabulary:** write, calculate

**Content Vocabulary:** volume, cone, sphere, cylinder,

<b>M.8.8</b>	Students will create and solve multi-step linear equations with rational numbers and apply them to real world contexts.
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	Students will...		
Pacing Instruct/Assess	Component Code	Component	Standard(s)
	<b>M.8.8.1</b>	Solve linear equations using the Distributive Property to expand an expression and combine like terms, include rational coefficients.	<b>8.EE.C.7.b</b>
	<b>M.8.8.2</b>	Solve equations with variables on both sides, to include rational coefficients.	<b>8.EE.C.7</b>
	<b>M.8.8.3</b>	Solve equations with infinitely many solutions or no solution, to include rational coefficients.	<b>8.EE.C.7.a</b>
	<b>M.8.8.4</b>	Create and rewrite an equation into simpler forms to determine if there is one solution, infinitely many solutions, or no solution.	<b>8.EE.C.7.a</b>
	<b>M.8.8.5</b>	Write and solve an equation given a description of a real world context, to include rational numbers.	

**Academic Vocabulary:** write, create, solve

**Content Vocabulary:** infinitely many solutions, no solution, one solution, rational coefficients, like terms, Distributive Property, like terms,

<b>M.8.9</b>	Students will solve systems of linear equations graphically and algebraically.		
	Students will...		
Pacing Instruct/Assess	Component Code	Component	Standard(s)
	<b>M.8.9.1</b>	Graph a system of linear equations on a coordinate plane and use the point	<b>8.EE.C.8.a</b>

		of intersection as the solution to both equations.	
	<b>M.8.9.2</b>	Write, graph and solve a system of linear equations in real world contexts.	<b>8.EE.C.8.a</b> <b>8.EE.C.8.c</b>
	<b>M.8.9.3</b>	Solve a system of linear equations algebraically using elimination and substitution in real world contexts.	<b>8.EE.C.8.b</b>
	<b>M.8.9.4</b>	Estimate the number of solutions by graphing a system of equations.	<b>8.EE.C.8.b</b>
	<b>M.8.9.5</b>	Graph two equations to determine the number of solutions (infinitely many, no solution, or one solution).	<b>8.EE.8.B</b>
	<b>M.8.9.6</b>	Determine the number of solutions for a system of linear equations without graphing.	

<b>M.8.10</b>	Students will analyze angle relationships created by parallel lines cut by a transversal and use triangle theorems to solve problems in real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.10.1</b>	Identify corresponding angles, complementary angles, supplementary angles, alternate interior angles, alternate exterior angles, same side interior angles, and vertical angles given a set of parallel lines cut by a transversal.	
	<b>M.8.10.2</b>	Calculate the measure of angles using characteristics of angles created when parallel lines are cut by a transversal.	<b>8.G.A.5</b>
	<b>M.8.10.3</b>	Justify the Triangle Sum Theorem to show that three angles of a triangle	<b>8.G.A.5</b>

		create a straight line.	
	<b>M.8.10.4</b>	Use facts about supplementary angles and the Triangle Sum Theorem to justify the Exterior Angle Theorem.	<b>8.G.A.5</b>
	<b>M.8.10.5</b>	Use facts about corresponding angles to determine angle - angle criterion for similarity of triangles.	<b>8.G.A.5</b>

**Academic Vocabulary:** justify, identify, calculate

**Content Vocabulary:** corresponding angles, complementary angles, supplementary angles, alternate interior angles, alternate exterior angles, same side interior angles, vertical angles, parallel lines cut by a transversal, Triangle Sum Theorem, Exterior Angle Theorem, Angle-Angle Criterion, similar

<b>M.8.11</b>	Students will create and analyze scatter plots and two-way tables.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.11.1</b>	Interpret a scatterplot to describe the linear or nonlinear associations, positive or negative associations, clustering and outliers between to quantities for bivariate data.	<b>8.SP.A.1</b>
	<b>M.8.11.2</b>	Describe patterns in scatter plots such as clustering, outliers, positive or negative associations and linear or nonlinear associations.	<b>8.SP.A.1</b>
	<b>M.8.11.3</b>	Construct a scatter plot.	<b>8.SP.A.1</b>
	<b>M.8.11.4</b>	Sketch a line of best fit through a scatter plot that suggests a linear association by judging the closeness	<b>8.SP.A.2</b>

		of the data points to the line.	
	<b>M.8.11.5</b>	Interpret the slope and intercept of the equation for the line of best fit in real world contexts.	<b>8.SP.A.3</b>
	<b>M.8.11.6</b>	State that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table.	<b>8.SP.A.3</b>
	<b>M.8.11.7</b>	Construct and create a two-way table summarizing data on two categorical variables collected from the same subjects.	<b>8.SP.A.4</b>
	<b>M.8.11.8</b>	Describe possible associations between two variables using relative frequencies that are calculated for rows or columns.	<b>8.SP.A.4</b>

**Academic Vocabulary:** interpret, describe, construct

**Content Vocabulary:** bivariate data, scatter plot, cluster, outlier, linear and nonlinear association, positive and negative association, line of best fit, frequency, relative frequency

<b>M.8.12</b>	Students will analyze real numbers to apply them to algebraic and abstract contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.12.1</b>	Describe and identify the difference between a rational and irrational number.	<b>8.NS.A.1</b>
	<b>M.8.12.2</b>	Convert rational numbers which repeat into the form $a/b$ .	<b>8.NS.A.1</b>

	<b>M.8.12.3</b>	Identify sets of real numbers in real world contexts.	
	<b>M.8.12.4</b>	Use rational approximations of irrational numbers to compare irrational numbers and graph on a number line.	<b>8.NS.A.2</b>
	<b>M.8.12.5</b>	Calculate the square root of perfect squares and the cube root of perfect cubes using the square root and cube root symbols to represent solutions to equations in the form $x^2 = p$ and $x^3 = p$ where $p$ is a positive rational number.	<b>8.EE.A.2</b>

**Academic Vocabulary:** describe, identify, calculate

**Content Vocabulary:** real number, rational number, irrational number, perfect square, perfect cube

<b>M.8.13</b>	Students will use the properties of integer exponents to generate equivalent numerical expressions.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.13.1</b>	Identify and use the properties of integer exponents to generate equivalent numerical expressions using the Zero Exponent Property and the Negative Exponent Property.	<b>8.EE.A.1</b>
	<b>M.8.13.2</b>	Identify and use the properties of integer exponents to generate equivalent numerical expressions using the Product of Powers Property and the Quotient of Powers Property	<b>8.EE.A.1</b>
	<b>M.8.13.3</b>	Identify and use the properties of integer exponents to generate	<b>8.EE.A.1</b>

		equivalent numerical expressions using the Power of a Product Property and the Power of a Quotient Property	
	<b>M.8.13.4</b>	Identify and use the properties of integer exponents to generate equivalent numerical expressions using the Power of a Power Property	<b>8.EE.A.1</b>

**Academic Vocabulary:** identify

**Content Vocabulary:** Product Property, Product of Powers Property, Quotient of Powers Property, Power to a Power Property, Zero Exponent Property, Negative Exponent Property, and Quotient Property.

<b>M.8.14</b>	Students will analyze and calculate numbers in scientific notation and apply them to real world contexts.		
	Students will...		
Pacing Instruct/Assess	<b>Component Code</b>	<b>Component</b>	<b>Standard(s)</b>
	<b>M.8.14.1</b>	Interpret scientific notation that has been generated by technology.	<b>8.EE.A.4</b>
	<b>M.8.14.2</b>	Write numbers in scientific notation with proper units of size to describe very large or very small quantities in real world contexts.	<b>8.EE.A.4</b>
	<b>M.8.14.3</b>	Convert between numbers in standard notation and scientific notation with positive and negative exponents.	
	<b>M.8.14.4</b>	Write a number in proper scientific notation where the coefficient (first factor) is greater than or equal to 1 but less than 10.	
	<b>M.8.14.5</b>	Add, subtract, multiply, and divide numbers in scientific notation,	<b>8.EE.A.4</b>

		including real world problems where both decimal and scientific notation are used.	
	<b>M.8.14.6</b>	Calculate and estimate how many times greater numbers in scientific notation are.	<b>8.EE.A.3</b>

**Academic Vocabulary:** interpret, write, calculate

**Content Vocabulary:** scientific notation

