



		<p>world contexts.</p> <p>*Solve real-world and mathematical problems using numerical and algebraic expressions and equations.</p> <p>*Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.</p>					
7.NS.1	1, 2, 3, 6	<p>*Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.</p> <p>*Describe situations in which opposite quantities combine to make 0. <i>For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.</i></p> <p>*Understand <math>p + q</math> as the number located a distance <math> q </math> from <math>p</math>, in the positive or negative direction depending on whether <math>q</math> is positive or negative. Show that a number and its opposite have a sum of</p>	<p>*Develop and use algorithms for adding and subtracting integers.</p> <p>*Model addition and subtraction of integers using distance/directions on a number line and a chip model.</p> <p>*Observe that the Commutative Property holds for addition but not subtraction of rational numbers.</p> <p>*Recognize and solve problems involving addition and subtraction of integers.</p> <p>*Solve simple equations with missing facts by using unrelated fact families.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (Investigation 2)</p> <p>*"Kuta" software</p> <p>*Number lines</p> <p>*IXL website</p>	*6 Days
7.NS.1a							
7.NS.1b							

7.NS.1c		0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.  *Understand subtraction of rational numbers as adding the additive inverse, $*p - q = p + (-q)$ . Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.	*Extend graphing with positive and negative coordinates to all 4 quadrants.				
7.NS.1d		*Apply properties of operations as strategies to add and subtract rational numbers.					
7.NS.3		*Solve real-world and mathematical problems involving the four operations with rational numbers.					
7.EE.3		* (See Inv. 1)					
7.NS.2	1, 2, 3, 6	*Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	*Use a number line/motion model to develop the relationship between repeated addition and multiplication with integers.	*Teacher-directed activities  *Independent/small group work	*Class work  *Quizzes  *Tests	*Connected Math Program Text (Investigation 4)  *"Kuta" software  *Number lines  *IXL website	*5 Days
7.NS.2a		*Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed	*Develop and use algorithms for multiplying and dividing integers.  *Examine number patterns to confirm algorithm for multiplication.  *Explore division of integers using fact families.	*Activate prior knowledge  *Review mathematical vocabulary  *Summarizing  *Applying computational skills			

7.NS.2b		<p>numbers. Interpret products of rational numbers by describing real-world contexts.</p> <p>*Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as <math>(-1)(-1) = 1</math> and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</p>	*Solve problems and develop skill in multiplying and dividing integers.				
7.NS.2c		*Apply properties of operations as strategies to multiply and divide rational numbers.					
7.NS.2d		*Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats					
7.NS.3		<p>*Solve real-world and mathematical problems involving the four operations with rational numbers.1</p> <p>*See Inv. 1</p>					
7.NS.1	1, 2, 3, 6	*Apply/extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	<p>*Explore the use of the order of Operations to order computation in problems.</p> <p>*Model the Distributive</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	*Connected Math Program Text (Investigation 4) *“Kuta” software	*4 Days



		problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	*Analyze and create comparison statements from given data.	mathematical vocabulary *Summarizing *Applying computational skills			
7.RP.2m  7.RP.3	1, 2, 3, 6	*(See Inv. 1)  *(See Inv. 1)	*Find equivalent ratios.  *Further develop strategies for comparing ratios to solve problems.	*Teacher-directed activities  *Independent/small group work  *Activate prior knowledge  *Review mathematical vocabulary  *Summarizing  *Applying computational skills	*Class work  *Quizzes  *Tests	*Connected Math Program Text (Investigation 2)  *"Kuta" software	*4 Days
7.RP.2  7.RP.2b  7.RP.2c	1, 2, 3, 6	*(See Inv. 1)  *Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.  *Represent proportional relationships by equations. <i>For example, if total cost <math>t</math> is proportional to the number <math>n</math> of items purchased at a constant price <math>p</math>, the relationship between the total cost and the number of items can be expressed as <math>t = pn</math>.</i>	*Examine and collect data of unit rates with ratios and linear measurement.  *Compute and interpret unit rates.  *Work with application of rates to miles per hour.  *Introduce "steady" or "average" rate of progress.  *Formalize meaning of unit rate and computation strategies for computing unit rates.	*Teacher-directed activities  *Independent/small group work  *Activate prior knowledge  *Review mathematical vocabulary  *Summarizing  *Applying computational skills	*Class work  *Quizzes  *Tests	*Connected Math Program Text (Investigation 3)  *"Kuta" software	*5 Days

7.RP.2d (ACE 9,10)		*Explain what a point $(x, y)$ on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where $r$ is the unit rate.	*Relate unit rate to slope of line. Examine meaning of dividing in rate situations.				
7.RP.3		*(See Inv. 1)					
7.RP.2	1, 2, 3, 6	*Analyze proportional relationships and use them to solve real-world and mathematical problems.	*Apply proportional reasoning to solve for the unknown part of 2 equal ratios is unknown.	*Teacher-directed activities	*Class work	*Connected Math Program Text (Investigation 4)	*4 Days
7.RP.2a		*Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	*Set up and solve proportions in applications.	*Independent/small group work	*Quizzes	*"Kuta" software	
7.RP.2b		*(See Inv. 3)	*Use ratios and scaling up and down to find missing value in a proportion.	*Activate prior knowledge	*Tests		
7.RP.3		*(See Inv. 1)	*Choose strategy for solving problems involving proportional reasoning.	*Review mathematical vocabulary			
7.G.1		*Draw, construct, and describe geometrical figures and describe the relationships between them.		*Summarizing			
		*Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.		*Applying computational skills			2 Days (Reflect and Assess)
							(September 6 – October 2)

MASHPEE MIDDLESCHOOL

**MATH DEPARTMENT  
CURRICULUM REVISION 2012  
GRADE LEVEL 7 ACC**

**COURSE NAME:** 7 Accelerated

**STRANDS:**

The Number System      Expressions and Equations      Geometry

**THEME/ESSENTIAL QUESTION:** Looking for Pythagoras/How is the Pythagorean Theorem applied?

**FOCUS QUESTIONS:** How do I know if it is appropriate and useful to use the Pythagorean Theorem in this situation?

Do I need to find the distance between two points?    What are the quantities in this problem?    How can I estimate the square root of a number?

How can I find the length of something without directly measuring it?

<u>STATE STANDARD/COMMON CORE</u>	<u>LEARN EXP 1-6</u>  <u>Math PS A-H</u>	<u>MATH CONCEPTS</u>	<u>SKILLS</u>	<u>INSTRUCTIONAL STRATEGIES</u>	<u>ASSESSMENT</u>	<u>RESOURCES/MATERIALS</u>	<u>PACING GUIDE</u>
Review of 6.NS.6	1, 2, 3, 6	*Apply and extend previous understandings of numbers to the system of rational numbers.	*To review the coordinate system.	*Teacher-directed activities	*Class work	*Connected Math Program Text (Investigation 1)	*4 Days
6.NS.6a		*Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	*To review circumference and area of a circle.  *To explore distances on a coordinate grid.	*Independent and small group work  *Activate prior knowledge	*Quizzes  *Tests  *Homework  **"Quick check"	*Graph paper  *Kuta Software	
6.NS.6b		*Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$ , and that 0 is its own opposite.  *Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across	*To review properties of quadrilaterals.  *To connect properties of figures to coordinate representations.  *To draw shapes on a coordinate grid.  *To develop strategies for finding areas of irregular figures on a grid.	*Model/prompt fading  *Review mathematical vocabulary  *Summarizing  *Applying computational skills		*IXL web site  *Calculators	

6.NS.6c		<p>one or both axes.</p> <p>*Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.</p>					
8.EE.2	1, 2, 3, 6	<p>*Work with radicals and integer exponents.</p> <p>*Use square root and cube root symbols to represent solutions to equations of the form <math>x^2 = p</math> and <math>x^3 = p</math>, where <math>p</math> is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that <math>\sqrt{2}</math> is irrational.</p>	<p>*To draw squares on 5 dot-by-5 dot grids and find their areas.</p> <p>*To introduce the concept of square root.</p> <p>*To understand square root geometrically, as the length of a square with known area.</p> <p>*To use geometric understanding of square roots to find lengths of line segments on a dot grid.</p>	<p>*Teacher-directed activities</p> <p>*Independent and small group work</p> <p>*Activate prior knowledge</p> <p>*Model/prompt fading</p> <p>*Review vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p> <p>*Homework</p> <p>*"Quick check"</p>	<p>*Connected Math Program Text (Investigation 2)</p> <p>*Graph paper</p> <p>*Kuta Software</p> <p>*IXL web site</p> <p>*Calculators</p>	*4 Days
8.EE.2	1, 2, 3, 6	<p>*Work with radicals and integer exponents.</p> <p>*Use square root and cube root symbols to represent solutions to equations of the form <math>x^2 = p</math> and <math>x^3 = p</math>, where <math>p</math> is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that <math>\sqrt{2}</math> is irrational.</p>	<p>*Deduce the Pythagorean Theorem through exploration.</p> <p>*Use the Pythagorean Theorem to find unknown side lengths of right triangles.</p> <p>*Use the Pythagorean Theorem to find the distance between two points on a grid.</p>	<p>*Teacher-directed activities</p> <p>*Independent and small group work</p> <p>*Activate prior knowledge</p> <p>*Model/prompt fading</p> <p>*Review vocabulary</p> <p>*Summarizing</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p> <p>*Homework</p> <p>*"Quick check"</p>	<p>*Connected Math Program Text (Investigation 3)</p> <p>*Graph paper</p> <p>*Kuta Software</p> <p>*IXL web site</p> <p>*Calculators</p>	*6 Days
8.G.6		<p>*Understand and apply the Pythagorean Theorem.</p> <p>*Explain a proof of the Pythagorean Theorem and its converse.</p>	<p>*Determine whether a triangle is a right triangle based on its side lengths.</p> <p>*Relate areas of squares to the</p>				

8.G.7		*Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	length of the sides.	*Applying computational skills			
8.G.8		*Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.					
8.G.9		*Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.  *Know the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.					
8.NS.1	1, 2, 3, 6	*Know that there are numbers that are not rational, and approximate them by rational numbers.  *Know that numbers that are not rational are called irrational.  *Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.  *Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., $\pi^2$ ). For example, by truncating the decimal expansion of $\sqrt{2}$ show that $\sqrt{2}$ is between 1 and 2, then	*Learn the meaning of rational number and irrational number.  *Estimate the values of square roots that are irrational numbers.  *Estimate the length of the hypotenuse of right triangles.  *Apply the Pythagorean Theorem in to a problem situation.	*Teacher-directed activities  *Independent and small group work  *Activate prior knowledge  *Model/prompt fading  *Review mathematical vocabulary  *Summarizing  *Applying computational skills	*Class work  *Quizzes  *Tests  *Homework  *"Quick check"	*Connected Math Program Text (Investigation 4)  *Graph paper  *Kuta Software  *IXL web site  *Calculators	*3 Days
8.NS.2							

8.EE.2		<p><i>between 1.4 and 1.5, and explain how to continue on to get better approximations.</i></p> <p>*Work with radicals and integer exponents.</p> <p>*Use square root and cube root symbols to represent solutions to equations of the form <math>x^2 = p</math> and <math>x^3 = p</math>, where <math>p</math> is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes.</p>				
8.G.7		<p>Know that <math>\sqrt{2}</math> is irrational.</p> <p>*Understand and apply the Pythagorean Theorem.</p>				
8.G.8		<p>*Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.</p> <p>*Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.</p>				<p>*2 Days Reflect &amp; Assess</p> <p>(May 13 – June 14)</p>

**MASHPEE MIDDLESCHOOL  
MATH DEPARTMENT  
CURRICULUM REVISION 2012  
GRADE LEVEL 7**

<b>GRADE LEVEL 7</b>
<b>COURSE NAME:</b> Math 7
<b>STRANDS:</b> The Number System
<b>THEME/ESSENTIAL</b> Accentuate the Negative/How are the four basic operations (add, subtract, multiply, divide) impacted through the introduction of negative numbers?
<b>FOCUS QUESTIONS:</b> How do positive and negative numbers help in describing a situation? What will the four basic operations (+, -, x, /) of positive and negative numbers tell about the problem? What model(s) for positive and negative numbers would help in showing the relationships in the problem situation?

<u>STATE STANDARD/COMMON CORE</u>	<u>LEARN EXP 1-6</u>  <u>Math PS A-H</u>	<u>MATH CONCEPTS</u>	<u>SKILLS</u>	<u>INSTRUCTIONAL STRATEGIES</u>	<u>ASSESSMENT</u>	<u>RESOURCES/MATERIALS</u>	<u>PACING GUIDE</u>
7.NS.1b	1, 2, 3, 6	<p>Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.</p> <p>*Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.</p> <p>*Understand <math>p + q</math> as the number located <math>p</math> distance <math> q </math> from <math>p</math>, in the positive or negative direction depending on whether <math>q</math> is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.</p>	<p>*Explore the use of and notation for integers in applied settings.</p> <p>*Interpret and write mathematical sentences.</p> <p>*Locate positive and negative numbers on a number line and compare and order them.</p> <p>*Understand relationship between a positive or negative number and its opposite.</p> <p>*Write number sentences to reflect the actions and results of changes in situations and find missing values.</p> <p>*Develop and use chip model and number line for representing addition and subtraction.</p> <p>*Understand that an integer and its additive inverse are called opposites.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (Investigation 1.1 – 1.3)</p> <p>*"Kuta" software</p> <p>*Number lines</p> <p>*IXL web site</p>	*3 Days
7.EE.3		<p>Solve real-world and mathematical problems using numerical and algebraic expressions and equations.</p> <p>*Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any</p>					

		form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.					
7.NS.1	1, 2, 3, 6	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	<ul style="list-style-type: none"> <li>*Develop and use algorithms for adding and subtracting integers.</li> <li>*Model addition and subtraction of integers using distance/directions on a number line and a chip model.</li> </ul>	<ul style="list-style-type: none"> <li>*Teacher-directed activities</li> <li>*Independent/small group work</li> </ul>	<ul style="list-style-type: none"> <li>*Class work</li> <li>*Quizzes</li> <li>*Tests</li> </ul>	<ul style="list-style-type: none"> <li>*Connected Math Program Text (Investigation 2)</li> <li>*"Kuta" software</li> <li>*Number lines</li> <li>*IXL website</li> </ul>	*6 Days
7.NS.1a		Describe situations in which opposite quantities combine to make 0. <i>For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.</i>	<ul style="list-style-type: none"> <li>*Observe that the Commutative Property holds for addition but not subtraction of rational numbers.</li> </ul>	<ul style="list-style-type: none"> <li>*Activate prior knowledge</li> <li>*Review mathematical vocabulary</li> <li>*Summarizing</li> </ul>			
7.NS.1b		Understand $p + q$ as the number located a distance $ q $ from $p$ , in the positive or negative direction depending on whether $q$ is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	<ul style="list-style-type: none"> <li>*Recognize and solve problems involving addition and subtraction of integers.</li> <li>*Solve simple equations with missing facts by using unrelated fact families.</li> <li>*Extend graphing with positive and negative coordinates to all 4 quadrants.</li> </ul>	<ul style="list-style-type: none"> <li>*Applying computational skills</li> </ul>			
7.NS.1c		Understand subtraction of rational numbers as adding the additive inverse, $*p - q = p + (-q)$ . Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.					
7.NS.1d		Apply properties of operations					

7.NS.3		as strategies to add and subtract rational numbers.  Solve real-world and mathematical problems involving the four operations with rational numbers. <sup>2</sup> 7.EE.3 (See Inv. 1)					
7.NS.2	1, 2, 3, 6	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	*Use a number line/motion model to develop the relationship between repeated addition and multiplication with integers.	*Teacher-directed activities  *Independent/small group work	*Class work  *Quizzes  *Tests	*Connected Math Program Text (Investigation 4)  *"Kuta" software  *Number lines  *IXL website	*5 Days
7.NS.2a		Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	*Develop and use algorithms for multiplying and dividing integers.  *Examine number patterns to confirm algorithm for multiplication.  *Explore division of integers using fact families.	*Activate prior knowledge  *Review mathematical vocabulary  *Summarizing  *Applying computational skills			
7.NS.2b		Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers	*Solve problems and develop skill in multiplying and dividing integers.				

<sup>2</sup> Computations with rational numbers extend the rules for manipulating fractions to complex fractions.



MASHPEE MIDDLESCHOOL  
MATH DEPARTMENT  
CURRICULUM REVISION 2012

GRADE LEVEL 7

**COURSE NAME:** Accelerated 7

**STRANDS:** Expressions and Equations      Ratio and Proportional Relationships      The Number System

**THEME/ESSENTIAL** Moving Straight Ahead/How can we recognize and represent linear relationships?

**FOCUS QUESTIONS:** What are the variables in the problem? Do the variables have a linear relationship to each other? What patterns in the problem suggest this? How can the linear pattern be represented in a problem, in a table, in a graph, or with an equation? How do changes in one variable affect changes in a related variable? How are these changes captured in a table, graph, or equation? How can tables, graphs, and equations of linear relationships be used to express and answer questions?

<u>STATE STANDARD/ COMMON CORE</u>	<u>LEARN EXP 1-6</u>  <u>Math PS A-H</u>	<u>MATH CONCEPTS</u>	<u>SKILLS</u>	<u>INSTRUCTIONAL STRATEGIES</u>	<u>ASSESSMENT</u>	<u>RESOURCES/ MATERIALS</u>	<u>PACING GUIDE</u>
7.EE.3	1, 2, 3, 6	<p>*Solve real-world and mathematical problems using numerical and algebraic expressions and equations.</p> <p>*Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. <i>For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar</i></p>	<p>*Describe patterns of change between dependent and independent variables for linear relationships.</p> <p>*Construct tables, graphs, and equations to represent linear patterns of change and translate information from one form to another.</p> <p>*Explore the y –intercept.</p> <p>*Understand negative rates of change and how they are represented in equations, tables, and graphs.</p> <p>*Describe what the variables and numbers in an equation represent.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (Investigation 1)</p> <p>*"Kuta" software</p> <p>*IXL web site</p>	*5 Days

7.EE.4		<p><i>about 9 inches from each edge; this estimate can be used as a check on the exact computation.</i></p> <p>*Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p>					
7.EE.4a		<p>*Solve word problems leading to equations of the form <math>px + q = r</math> and <math>p(x + q) = r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. <i>For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</i></p>					
7.EE.3 7.EE.4 7.EE.4a  7.EE.4b (ACE 44)  MA.4c.	1, 2, 3, 6	<p>* (See Inv. 1)</p> <p>*Solve word problems leading to inequalities of the form <math>px + q &gt; r</math> or <math>px + q &lt; r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. <i>For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.</i></p> <p>*Extend analysis of patterns to include analyzing, extending, and determining an expression for simple arithmetic and geometric sequences (e.g., compounding, increasing area), using tables, graphs, words, and expressions.</p>	<p>*Find solutions to a problem using a table or graph.</p> <p>*Understand connections and translate information about linear relations given in a table, graph, or an equation to one of the other forms.</p> <p>*Connect solutions in graphs and tables to solutions of equations.</p> <p>*Understand how the y-intercept appears in equations and table.</p> <p>*Write equations for linear relationships and describe what information the variable and numbers represent.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (Investigation 2)</p> <p>*"Kuta" software</p> <p>*IXL web site</p>	*4 Days

<p>7.EE.1</p> <p>7.EE.3</p> <p>7.EE.4</p> <p>7.EE.4a</p>	<p>1, 2, 3, 6</p>	<p>*Use properties of operations to generate equivalent expressions.</p> <p>*Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>*(See Inv. 1)</p>	<p>*Continue to describe what information the variable and numbers represent.</p> <p>*Solve linear equations in one variable using tables, graphs, and symbols.</p> <p>*Continue to connect solutions to equations in a table or graph to the equation.</p> <p>*Develop an understanding of equality.</p> <p>*Use the properties of equality to solve equations.</p> <p>*Check solutions to equations.</p> <p>*Continue to interpret equations in an applied setting.</p> <p>*Find a point of intersection of 2 lines.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (Investigation 3)</p> <p>*"Kuta" software</p> <p>*IXL web site</p>	<p>*6 Days</p>
<p>7.EE.1</p> <p>7.EE.3</p> <p>7.EE.4</p> <p>7.EE.4a</p>	<p>1, 2, 3, 6</p>	<p>*(See Inv. 1)</p>	<p>*Introduce students to the concept of slope as ratio of vertical to horizontal change.</p> <p>*Make connection between slope and rate of change.</p> <p>*Use slope to sketch a line.</p> <p>*Find y-intercept of a line from data in table, graph or equation.</p> <p>*Use slope and y-intercept to write equation in form of <math>y = m x + b</math>.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (Investigation 4)</p> <p>*"Kuta" software</p> <p>*IXL web site</p>	<p>*5 Days</p>

			<p>*Find the slope of a line from data in table, graph or equation. Write equation for an application given two data points.</p> <p>*Explore patterns among lines that have the same slope (parallel) or slopes that are negative reciprocals of each other.</p>				
7.RP.1 and 7.RP.2a	1, 2, 3, 6	<p>*Analyze proportional relationships and use them to solve real-world and mathematical problems.</p> <p>*Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. <i>For example, if a person walks <math>\frac{1}{2}</math> mile in each <math>\frac{1}{4}</math> hour, compute the unit rate as the complex fraction <math>\frac{1/2}{1/4}</math> miles per hour, equivalently 2 miles per hour.</i></p> <p>*Recognize and represent proportional relationships between quantities.</p> <p>*Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.</p> <p>*Explain what a point <math>(x, y)</math> on the graph of a proportional relationship means in terms of the situation, with special attention to the points <math>(0, 0)</math> and <math>(1, r)</math> where <math>r</math> is the unit rate.</p>	<p>*Compute unit rates associated with ratios of fractions, including quantities measured in like or different units.</p> <p>*Decide whether two quantities are in a proportional relationship.</p> <p>*Explain what any point <math>(s,y)</math>, including <math>(0,0)</math> and <math>(1,r)</math> where <math>r</math> is as a unit rate.</p> <p>*On a graph of a proportional relationship means in terms of the situation.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (CC Inv. 1)</p> <p>*"Kuta" software</p> <p>*IXL web site</p>	*4 Days
7.RP.2d							
7.EE.1 7.EE.2	1, 2, 3, 6	*(See Inv. 1)	<p>*Apply the properties of operations to add, subtract, factor and expand algebraic expressions.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (CC Inv. 2)</p> <p>*"Kuta" software</p>	*3 Days

			<p>*Understand that writing an equivalent expression in a problem context can shed light on how quantities in the problem are related.</p>	<p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>		*IXL web site	
7.NS.3	1, 2, 3, 6	*Solve real-world and mathematical problems involving the four operations with rational numbers.	*Solve word problems leading to one-and two-step equations.	*Teacher-directed activities	*Class work	*Connected Math Program Text (CC Inv. 3)	*4 Days
7.NS.4b		*Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. <i>For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.</i>	*Graph the solutions to one-and two-step inequalities and interpret the solution set in the context of the problem.	*Independent/small group work	*Quizzes	*"Kuta" software	
MA.4c.		*Extend analysis of patterns to include analyzing, extending, and determining an expression for simple arithmetic and geometric sequences (e.g., compounding, increasing area), using tables, graphs, words, and expressions.		*Activate prior knowledge	*Tests	*IXL web site	
				*Review mathematical vocabulary			*2 Days Reflect and Assess
				*Summarizing			(November 2 – December 21)
				*Applying computational skills			

**MASHPEE MIDDLESCHOOL  
MATH DEPARTMENT  
CURRICULUM REVISION 2012**

**GRADE LEVEL 7**

**COURSE NAME:** Accelerated 7

**STRANDS:** Expressions and Equations                      Functions

**THEME/ESSENTIAL QUESTION:** Thinking with Mathematical Models/How are linear and inverse functions modeled?

**FOCUS QUESTIONS:** What are the key variables in this situation? What is the pattern relating the variables?  
What kind of equation will express the relationship? How can I use the equation to answer questions about the relationship?

<u>STATE STANDARD/COMMON CORE</u>	<u>LEARN EXP 1-6</u>  <u>Math PS A-H</u>	<u>MATH CONCEPTS</u>	<u>SKILLS</u>	<u>INSTRUCTIONAL STRATEGIES</u>	<u>ASSESSMENT</u>	<u>RESOURCES/MATERIALS</u>	<u>PACING GUIDE</u>
8.F.2	1, 2, 3, 6	*Define, evaluate, and compare functions. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.	*Make tables and graphs to represent data.  *Describe relationships between variables.  *Use data patterns to make predictions.  *Compare and contrast linear and non-linear relationships.	*Teacher-directed activities  *Independent and small group work  *Activate prior knowledge  *Model/prompt fading  *Review mathematical vocabulary  *Summarizing  *Applying computational skills	*Class work  *Quizzes  *Tests  *Homework  *"Quick check"	*Connected Math Program Text (Investigation 1)  *Graph paper  *Kuta Software  *IXL web site  *Calculators	*6 Days
8.F.4		*Use functions to model relationships between quantities. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.					
8.F.5		*Describe qualitatively the functional					

8.SP.3		<p>relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.</p> <p>*Investigate patterns of association in bivariate data.</p> <p>*Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.</p>					
8.EE.6  8.EE.7  8.EE.7 b  8.F.3	1, 2, 3, 6	<p>*Understand the connections between proportional relationships, lines, and linear equations.</p> <p>*Use similar triangles to explain why the slope <math>m</math> is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation <math>y = mx</math> for a line through the origin and the equation <math>y = mx + b</math> for a line intercepting the vertical axis at <math>b</math>.</p> <p>*Analyze and solve linear equations and pairs of simultaneous linear equations. Solve linear equations in one variable.</p> <p>*Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p>	<p>*Fit a line to data that shows a linear trend.</p> <p>*Use mathematical models to answer questions about linear relationships.</p> <p>*Practice effective strategies for writing linear equations from verbal, numerical, or graphical information.</p> <p>*Develop skill in solving linear equations with approximation and exact reasoning methods.</p> <p>*Write inequalities to represent “at most” situations.</p> <p>*Use equations to represent questions about problem situations and to interpret the</p>	<p>*Teacher-directed activities</p> <p>*Independent and small group work</p> <p>*Activate prior knowledge</p> <p>*Model/prompt fading</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p> <p>*Homework</p> <p>*“Quick check”</p>	<p>*Connected Math Program Text (Investigation 2)</p> <p>*Graph paper</p> <p>*Kuta Software</p> <p>*IXL web site</p> <p>*Calculators</p>	*8 Days

8.F.5	<p>*Define, evaluate, and compare functions.</p> <p>*Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as <math>3 \times 10^8</math> and the population of the world as <math>7 \times 10^9</math>, and determine that the world population is more than 20 times larger.</p>	solutions in the context of the problem.				
8.SP.2	<p>*Understand the connections between proportional relationships, lines, and linear equations.</p> <p>Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph.</p>					
8.SP.3	<p>*Investigate patterns of association in bivariate data.</p> <p>*Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.</p> <p>*Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour.</p>					

8.F.3	1, 2, 3, 6	*Define, evaluate, and compare functions. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.	*Explore situations that can be modeled by inverse variation relationships.  *Investigate the nature of inverse variation in familiar contexts.  *Compare inverse variations with linear relationships.	*Teacher-directed activities  *Independent and small group work  *Activate prior knowledge  *Model/prompt fading  *Review mathematical vocabulary  *Summarizing  *Applying computational skills	*Class work  *Quizzes  *Tests  *Homework  *"Quick check"	*Connected Math Program Text (Investigation 3)  *Graph paper  *Kuta Software  *IXL web site  *Calculators	*7 Days
8.EE  8.EE.5  6.  8.EE	1, 2, 3, 6	*Understand the connections between proportional relationships, lines, and linear equations.  *Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. <i>For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.</i>  *Use similar triangles to explain why the slope $m$ is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at $b$ .	*Graph proportional relationships, interpreting the unit rate as the slope of the graph.  *Compare proportional relationships represented in different ways.  *Use similar triangles on the coordinate plane to explain why the slope between any two points on a line is a constant.  *Derive the equations $y = mx$ and $y = mx + b$ to describe lines on the coordinate plane.  *Simplify a linear equation in one variable to determine	*Teacher-directed activities  *Independent and small group work  *Activate prior knowledge  *Model/prompt fading  *Review mathematical vocabulary  *Summarizing  *Applying computational skills	*Class work  *Quizzes  *Tests  *Homework  *"Quick check"	*Connected Math Program Text (CC Investigation 2)  *Graph paper  *Kuta Software  *IXL web site  *Calculators	*7 Days

7.	<p>*Analyze and solve linear equations and pairs of simultaneous linear equations.</p> <p>*Solve linear equations in one variable.</p> <p>a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form <math>x = a</math>, <math>a = a</math>, or <math>a = b</math> results (where <math>a</math> and <math>b</math> are different numbers)</p>	<p>whether it has no solution, one solution, or infinitely many solutions.</p> <p>*Understand that a function is a rule that assigns a unique output to each input, and that a graph of a function is a set of ordered pairs consisting of each input and corresponding output.</p>				<p>*2 Days Reflect and Assess</p>
8.F	<p>*Define, evaluate, and compare functions.</p> <p>1. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.<sup>4</sup></p> <p>2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). <i>For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.</i></p>					<p>(March 22 – May 10)</p>

**MASHPEE MIDDLESCHOOL  
MATH DEPARTMENT  
CURRICULUM REVISION 2012  
GRADE LEVEL 7**

<b>COURSE NAME:</b> Accelerated 7
<b>STRANDS:</b> Statistics and Probability
<b>THEME/ESSENTIAL</b> What Do You Expect?/How do you find the probability and expected value in real-life situations?
<b>FOCUS QUESTIONS:</b> What are the possible outcomes for this situation? Are the outcomes equally likely? Is this a fair or unfair situation?

Can I compute the theoretical probability or do I need to conduct an experiment? How can I determine the probability of a two-event situation?  
How can I use expected value to help me make decisions?

<u>STATE STANDARD/COMMON CORE</u>	<u>LEARN EXP 1-6</u>  <u>Math PS A-H</u>	<u>MATH CONCEPTS</u>	<u>SKILLS</u>	<u>INSTRUCTIONAL STRATEGIES</u>	<u>ASSESSMENT</u>	<u>RESOURCES/MATERIALS</u>	<u>PACING GUIDE</u>
7.SP.5	1, 2, 3, 6	<p>*Investigate chance processes and develop, use, and evaluate probability models.</p> <p>*Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around <math>\frac{1}{2}</math> indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.</p>	<p>*Review basic probability concepts, such as fair game, experimental probability, theoretical probability, and fraction notation for expression probabilities.</p> <p>*Include a payoff in consideration of the fairness of a game.</p> <p>*Use probability and payoff to calculate long-term average result of a game of chance. figures.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (Investigation 1)</p> <p>*"Kuta" software</p> <p>*IXL web site</p> <p>*Spinners</p> <p>*Games of chance</p>	*4 Days
7.SP.6.		<p>*Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. <i>For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.</i></p>					
7.SP.7		<p>*Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.</p> <p>a. Develop a uniform probability</p>					

7.SP.8	<p>model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. <i>For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.</i></p> <p>b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. <i>For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?</i></p> <p>*Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.</p> <p>a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.</p> <p>b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.</p> <p>c. Design and use a simulation to generate frequencies for compound events. <i>For example, use random digits as a simulation tool to approximate the answer to the</i></p>					
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		<i>question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?</i>					
7.SP.6; 7.SP.7, 7.a, 7.b, 7.SP.8, 8.a, 8.b	1, 2, 3, 6	*(See Inv. 1)	<p>*Use an area model to analyze the theoretical probabilities for 2-stage outcomes.</p> <p>*Simulate and analyze probability situations involving 2-stage outcomes.</p> <p>*Distinguish between equally likely and non-likely outcomes by collecting data and analyzing experimental probabilities.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (Investigation 2)</p> <p>*"Kuta" software</p> <p>*IXL web site</p> <p>*Spinners</p> <p>*Games of chance</p>	*4 Days
7.SP.6; 7.SP.7, 7.a, 7.b, 7.SP.8, 8.a, 8.b	1, 2, 3, 6	*(See Inv. 1)	<p>*Understand the difference between probability of an outcome and long-term average of many trials in a situation with a payoff.</p> <p>*Determine the expected value in a probability situation.</p> <p>*Use probability to make decisions.</p>	<p>*Teacher-directed activities</p> <p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	<p>*Class work</p> <p>*Quizzes</p> <p>*Tests</p>	<p>*Connected Math Program Text (Investigation 3)</p> <p>*"Kuta" software</p> <p>*IXL web site</p> <p>*Spinners</p> <p>*Games of chance</p>	*4 Days
7.SP.6; 7.SP.7, 7.a,	1, 2, 3, 6	*(See Inv. 1)	<p>*Analyze a binomial situation.</p> <p>*Practice finding expected value in a</p>	<p>*Teacher-directed activities</p>	<p>*Class work</p> <p>*Quizzes</p>	<p>*Connected Math Program Text</p>	*4 Days

7.b, 7.SP.8, 8.a, 8.b			<p>multiple-stage probability situation.</p> <p>*Analyze a binomial situation with multiple stage outcomes.</p>	<p>*Independent/small group work</p> <p>*Activate prior knowledge</p> <p>*Review mathematical vocabulary</p> <p>*Summarizing</p> <p>*Applying computational skills</p>	*Tests	<p>(Investigation 4)</p> <p>*"Kuta" software</p> <p>*IXL web site</p> <p>*Spinners</p> <p>*Games of chance</p>	<p>*2 Days Reflect and Assess</p> <p><b>(February 25 – March 21)</b></p>
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