

## DIETRICH SCHOOLS 6<sup>th</sup> Grade Math PACING GUIDE

Grade 6	Third Quarter		2015-2016
<p><b>Grade Level Mathematics Focus:</b> In Grade 6, instructional time should focus on four critical areas:</p> <p>(1) connecting ratio and rate to whole number multiplication and division, and using concepts of ratio and rate to solve problems</p> <p>(2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers</p> <p>(3) writing, interpreting, and using expressions and equations</p> <p>(4) developing understanding of statistical thinking</p>			
<p><b>Essential Questions for this Unit:</b></p> <p>1. How can students develop understanding of the use of variables in mathematical expressions, write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems?</p> <p>2. How can students understand that expressions in different forms can be equivalent, and use the properties of operations to rewrite expressions in equivalent forms?</p> <p>3. How can students know that the solutions of an equation are the values of the variables that make the equation true?</p> <p>4. How can students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations?</p> <p>5. How can students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and use equations (such as <math>3x = y</math>) to describe relationships between quantities?</p>			
Unit	CCSS ENY Mr. F	Standard Description	Content
EE	6.EE.1 <a href="#">Lesson</a> Mod 4 L 5	Write and evaluate numerical expressions involving whole-number exponents	<p style="text-align: center;">Decomposition Bar Model</p> <p style="text-align: center;">Resources ENY <a href="#">Video Lessons</a> <a href="#">EE Online</a> <a href="#">EE 5-8 Online</a></p> <p style="text-align: center;"><a href="#">CCSS-Links to Lessons-Activities</a> <a href="#">Learn Zillion PPT</a></p> <p>EE.1</p> <ul style="list-style-type: none"> <li>• <a href="#">Write numerical expressions involving whole-number exponents</a></li> <li>• <a href="#">Evaluate numerical expressions by using whole-number exponents</a></li> <li>• <a href="#">Write numerical expressions using area and volume models</a></li> <li>• <a href="#">Evaluate a numerical expression using Order of Operations</a></li> <li>• <a href="#">Write a numerical expression using exponents by interpreting a problem</a></li> </ul> <p>Lessons</p> <ul style="list-style-type: none"> <li>• <a href="#">Exponents</a></li> <li>• <a href="#">Patterns and Exponents</a></li> <li>• <a href="#">Order of Operations With Exponents</a></li> </ul> <p>Worksheets</p> <ul style="list-style-type: none"> <li>• <a href="#">Evaluating Numerical Expressions with Exponents</a></li> </ul>
	6.EE.2a <a href="#">Lesson</a> Mod 4 L 9-10	Write expressions that record operations with numbers and with letters standing for numbers.	
	6.EE.2b <a href="#">Lesson</a> Mod 4 L 13-16	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.	

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	<p><b>6.EE.2c</b> <u>Lesson</u> <b>Mod 4</b> <b>L 6</b></p>	<p>Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).</p>		<ul style="list-style-type: none"> <li>• <a href="#">Making Words With Calculator Fun</a></li> </ul> <p>EE.2a</p> <ul style="list-style-type: none"> <li>• <a href="#">Read and write an algebraic expression containing a variable</a></li> <li>• <a href="#">Use alternative notation for multiplication and division in algebraic expressions</a></li> <li>• <a href="#">Read and write algebraic expressions using parentheses</a></li> <li>• <a href="#">Evaluate one-step algebraic expressions by substitution</a></li> <li>• <a href="#">Evaluate multiple step algebraic expressions by substitution</a></li> <li>• <a href="#">Evaluate algebraic expressions with exponents</a></li> <li>• <a href="#">Write and evaluate algebraic expressions using formulas</a></li> <li>• <a href="#">Combine parts of an expression: using the associative property</a></li> <li>• <a href="#">Write word problems as algebraic expressions</a></li> <li>• <a href="#">Simplify addition and subtraction expressions: combining like terms</a></li> <li>• <a href="#">Simplify multiplication and division expressions: combining like terms</a></li> </ul> <p>Lessons</p> <ul style="list-style-type: none"> <li>• <a href="#">Writing Algebraic Expressions</a></li> </ul> <p>Worksheets</p> <ul style="list-style-type: none"> <li>• <a href="#">Evaluating Written Expressions</a></li> <li>• <a href="#">Using Tables and Data Charts With Expressions</a></li> </ul> <p>EE.2b</p> <ul style="list-style-type: none"> <li>• <a href="#">Read and write an algebraic expression containing a variable</a></li> <li>• <a href="#">Use alternative notation for multiplication and division in algebraic expressions</a></li> <li>• <a href="#">Read and write algebraic expressions using parentheses</a></li> <li>• <a href="#">Evaluate one-step algebraic expressions by substitution</a></li> <li>• <a href="#">Evaluate multiple step algebraic expressions by substitution</a></li> <li>• <a href="#">Evaluate algebraic expressions with exponents</a></li> <li>• <a href="#">Write and evaluate algebraic expressions using formulas</a></li> </ul> <p>Lessons</p> <ul style="list-style-type: none"> <li>• <a href="#">Writing Algebraic Expressions</a></li> </ul> <p>Worksheets</p> <ul style="list-style-type: none"> <li>• <a href="#">Expressions That Use Math Terms</a></li> </ul> <p>EE.2c</p> <ul style="list-style-type: none"> <li>• <a href="#">Read and write an algebraic expression containing a variable</a></li> <li>• <a href="#">Use alternative notation for multiplication and division in algebraic expressions</a></li> <li>• <a href="#">Read and write algebraic expressions using parentheses</a></li> </ul>
	<p><b>6.EE.6</b> <u>Lesson</u> <b>Mod 4</b> <b>L 18-22</b></p>	<p>Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.</p>		
	<p><b>6.EE.9</b> <u>Lesson</u> <b>Mod 4</b> <b>L 30-34</b></p>	<p>Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equations.</p>		
	<p><b>6.EE.3</b> <u>Lesson</u> <b>Mod 4</b> <b>L 1-4, 12</b></p>	<p>Apply the properties of operations to generate equivalent expressions.</p>		
	<p><b>6.EE.4</b> <u>Lesson</u> <b>Mod 4</b></p>	<p>Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them)</p>		
	<p><b>6.EE.5</b> <u>Lesson</u> <b>Mod 4</b> <b>L 30-34</b></p>	<p>Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.</p>		

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	<p><b>6.EE.7</b> <b>Lesson</b> <b>Mod 4</b> <b>L 30-34</b></p>	<p>Solve real-world and mathematical problems by writing and solving equations of the form <math>x + p = q</math> and <math>px = q</math> for cases in which <math>p</math>, <math>q</math> and <math>x</math> are all nonnegative rational numbers.</p>		<ul style="list-style-type: none"> <li>• <a href="#">Evaluate one-step algebraic expressions by substitution</a></li> <li>• <a href="#">Evaluate multiple step algebraic expressions by substitution</a></li> <li>• <a href="#">Evaluate algebraic expressions with exponents</a></li> <li>• <a href="#">Write and evaluate algebraic expressions using formulas</a></li> <li>• <a href="#">Find the area of a square and the surface area of a cube</a></li> <li>• <a href="#">Solve expressions by substituting variables with values</a></li> <li>• <a href="#">Find the volume of a cube</a></li> </ul>
	<p><b>6.EE.8</b> <b>Lesson</b> <b>Mod 4</b> <b>L 30-34</b></p>	<p>Write an inequality of the form <math>x &gt; c</math> or <math>x &lt; c</math> to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form <math>x &gt; c</math> or <math>x &lt; c</math> have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</p>		<p>Worksheets</p> <ul style="list-style-type: none"> <li>• <a href="#">Expressions Used In Word Problems</a></li> </ul> <p>EE.6</p> <ul style="list-style-type: none"> <li>• <a href="#">Understand how variables are used</a></li> <li>• <a href="#">Write algebraic expressions using addition and subtraction</a></li> <li>• <a href="#">Write algebraic expressions using multiplication and division</a></li> <li>• <a href="#">Write multi-step algebraic expressions</a></li> <li>• <a href="#">Determine whether an algebraic expression matches a scenario</a></li> <li>• <a href="#">Write an algebraic expression for a real-world scenario: addition/subtraction</a></li> <li>• <a href="#">Write an algebraic expression for a real-world scenario: multiplication/division</a></li> <li>• <a href="#">Write a complex algebraic expression for planting flowers using an area model</a></li> <li>• <a href="#">Write a complex algebraic expression for paying employees using an area model</a></li> </ul> <p>Lessons</p> <ul style="list-style-type: none"> <li>• <a href="#">Writing Algebraic Equations Math and Climate Worksheet</a></li> </ul> <p>Worksheets</p> <ul style="list-style-type: none"> <li>• <a href="#">Using Variables to Represent Numbers</a></li> </ul> <p>EE.9</p> <ul style="list-style-type: none"> <li>• <a href="#">Identify independent and dependent variables</a></li> <li>• <a href="#">Relate independent and dependent variables using a function table</a></li> <li>• <a href="#">Show the relationship between variables using a graph</a></li> <li>• <a href="#">Relate variables using an equation</a></li> <li>• <a href="#">Identify variables and their relationship in a real-world situation</a></li> <li>• <a href="#">Identify variables and their relationship in a table</a></li> <li>• <a href="#">Identify variables and their relationship in a graph</a></li> <li>• <a href="#">Convert real world situations into equations using models</a></li> <li>• <a href="#">Write equation of a graph using a table</a></li> </ul>

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				<ul style="list-style-type: none"><li>• <a href="#">Create equivalent algebraic representations (table, graph, equation, word problem).</a></li></ul> <p>Worksheets</p> <ul style="list-style-type: none"><li>• <a href="#">Using Variables to Represent Two Quantities</a></li></ul> <p>EE.3</p> <ul style="list-style-type: none"><li>• <a href="#">Combine like terms using commutative and associative properties</a></li><li>• <a href="#">Simplify algebraic expressions by combining like terms</a></li><li>• <a href="#">Apply distributive property by using a visual model</a></li><li>• <a href="#">Simplify algebraic expressions by applying the distributive property</a></li><li>• <a href="#">Regroup with distributive property by using a visual model</a></li><li>• <a href="#">Regroup algebraic expressions by applying the distributive property</a></li><li>• <a href="#">Simplify algebraic expressions by combining like terms and applying the distributive property</a></li><li>• <a href="#">Create equivalent expressions using diagrams</a></li><li>• <a href="#">Apply distributive property using diagrams</a></li><li>• <a href="#">Apply distributive property using repeated addition</a></li><li>• <a href="#">Factor expressions using the distributive property and area models</a></li><li>• <a href="#">Factor expressions by grouping diagrams</a></li><li>• <a href="#">Create an equivalent expression using the standard algorithm</a></li><li>• <a href="#">Justify equivalent expressions</a></li></ul> <p>Lesson</p> <ul style="list-style-type: none"><li>• <a href="#">Area of a Rectangle</a></li></ul> <p>Worksheets</p> <p><a href="#">Basic Operations and Generating Equivalent Expressions</a></p> <p>EE.4</p> <ul style="list-style-type: none"><li>• <a href="#">Write equivalent expressions using visual/area model</a></li><li>• <a href="#">Read and write equivalent expressions with variables and exponents</a></li><li>• <a href="#">Write equivalent expressions by combining like terms</a></li><li>• <a href="#">Understand equations using balance scales</a></li></ul> <p>Worksheets</p> <ul style="list-style-type: none"><li>• <a href="#">One-Variable Equations and Inequalities</a></li><li>• <a href="#">Combine Like Terms and Expand Terms</a></li></ul> <p>EE.5</p> <ul style="list-style-type: none"><li>• <a href="#">Understand that equations have one solution using a pan balance</a></li></ul>
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				<ul style="list-style-type: none"> <li>• <a href="#">Understand that equations have one solution using a number line</a></li> <li>• <a href="#">Understand that an inequality has more than one solution using a pan balance</a></li> <li>• <a href="#">Understand that inequalities have more than one solution using a number line</a></li> </ul> <p>Lessons</p> <ul style="list-style-type: none"> <li>• <a href="#">Writing Algebraic Equations</a></li> </ul> <p>Worksheets</p> <ul style="list-style-type: none"> <li>• <a href="#">Solving Equations and Inequalities</a></li> </ul> <p>EE.7</p> <ul style="list-style-type: none"> <li>• <a href="#">Write and solve addition equations using a bar model</a></li> <li>• <a href="#">Write and solve subtraction equations using a bar model</a></li> <li>• <a href="#">Write and solve multiplication equations using a bar model</a></li> <li>• <a href="#">Write and solve division equations using a bar model</a></li> <li>• <a href="#">Writing algebraic equations (Addition, Subtraction)</a></li> <li>• <a href="#">Solve algebraic equations involving addition and subtraction using inverse operations</a></li> <li>• <a href="#">Write an algebraic equation from a real-world scenario using multiplication and division</a></li> <li>• <a href="#">Write and solve an algebraic equation by determining when to use multiplication and division</a></li> <li>• <a href="#">Solve addition and subtraction word problems by identifying key vocabulary (part 1)</a></li> <li>• <a href="#">Solve addition and subtraction word problems by identifying key vocabulary (part 2)</a></li> <li>• <a href="#">Solve multiplication and division word problems by identifying key vocabulary (part 1)</a></li> <li>• <a href="#">Solve multiplication and division word problems by identifying key vocabulary (part 2)</a></li> <li>• <a href="#">Solve word problems: identifying key vocabulary</a></li> <li>• <a href="#">Solve addition and subtraction problems: using 1-step equations</a></li> <li>• <a href="#">Solve multiplication and division problems: using 1-step equations</a></li> <li>• <a href="#">Write addition and subtraction problems as algebraic expressions</a></li> <li>• <a href="#">Solve real-world problems: using multiplication and division equations</a></li> </ul> <p>Worksheets</p> <ul style="list-style-type: none"> <li>• <a href="#">Solve Real-world Mathematical Problems With Expressions</a></li> <li>• <a href="#">Single Step Algebra Equation Solving</a></li> </ul>
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				<p>EE.8</p> <ul style="list-style-type: none"><li>• <a href="#">Graph an inequality</a></li><li>• <a href="#">Write and graph inequalities: shopping</a></li><li>• <a href="#">Write and graph inequalities: temperature</a></li><li>• <a href="#">Represent the solution set of an equality using a number line</a></li><li>• <a href="#">Write inequalities given a number line representation</a></li><li>• <a href="#">Represent real-world scenarios involving inequalities with number line representations</a></li></ul> <p>Worksheets</p> <ul style="list-style-type: none"><li>• <a href="#">Inequality Constraint or Condition Word Problems</a></li></ul>
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