

DIETRICH SCHOOLS 6th Grade Math PACING GUIDE

Grade 6	Second Quarter			2015-2016
<p>Grade Level Mathematics Focus: 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>Essential Questions for this Unit:</p> <p>1. How can reasoning about multiplication and division be used to solve ratio and rate problems about quantities?</p> <p>2. How can viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and analyzing simple drawings that indicate the relative size of quantities, help students connect their understanding of multiplication and division with ratios and rates?</p> <p>3. How can students expand the scope of problems for which they can use multiplication and division to solve problems, and make connections between concepts of ratios and fractions, in order to solve a wide variety of problems involving ratios and rates?</p>				
Unit	CCSS <u>ENY</u> <u>Mr. F</u>	Standard Description	Content	Resources <u>ENY</u> <u>Video Lessons</u> <u>NS2-8 Online</u> <u>EE9 Online</u> <u>RP 1-3 Online</u>
NS G EE RP	6.NS.5 <u>Lesson</u> Mod 3 L 4-13	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperatures above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	<ul style="list-style-type: none"> • Simplify Using GCF • Divide by GCF • Common Denominators • Multiply Across • Array (area model) • Bar Model 	<p style="text-align: center;"><u>CCSS-Links to Lessons-Activities</u></p> <p style="text-align: center;">Learn Zillion PPT NS</p> <p style="text-align: center;">Learn Zillion EE</p> <p style="text-align: center;">Learn Zillion RP</p> <p style="text-align: center;">Learn Zillion G</p> <p style="text-align: center;">NS.5</p> <ul style="list-style-type: none"> • Relate positive and negative quantities • Relate positive and negative quantities; apply to elevation • Relate positive and negative quantities; apply to temperature • Relate positive and negative quantities; apply to bank balance • Understand negative numbers using a number line • Understanding positive and negative numbers using elevations
	6.NS.6a <u>Lesson</u> Mod 3 L 7-13	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.	<ul style="list-style-type: none"> • Divide Across • Multiply by Reciprocal • Bar Model • Equivalent Forms of 1 	
	6.NS.6c <u>Lesson</u>	Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and	<ul style="list-style-type: none"> • Array • Cross Products 	

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	Mod 3 L 14-19	position pairs of integers and other rational numbers on a coordinate plane.	<ul style="list-style-type: none"> • Common Denominators • Multiply by LCD • Multiply by Both Denominators • Graphing • Bar model • Direct translation • Proportion • Decomposition • Direct Translation • Bar Model • Traditional • Substitution • Graphing 	<ul style="list-style-type: none"> • <u>Understanding positive and negative numbers with temperature</u> • <u>Understanding positive and negative numbers with money</u> 	
	6.NS.7a Lesson Mod 3 L 10	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.			<p>Lessons</p> <ul style="list-style-type: none"> • <u>Introduction to Integers</u> • <u>Absolute Value</u> • <u>Comparing and Ordering Integers</u> • <u>Integer Addition</u> • <u>Integer Subtraction</u> • <u>Integer Multiplication</u> • <u>Integer Division</u> • <u>Operations with Integers</u> • <u>Practice Exercises for Integers</u> • <u>Challenge Exercises for Integers</u>
	6.NS.7b Lesson Mod L 14-19	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 one or both axes.			<p>Worksheets</p> <ul style="list-style-type: none"> • <u>Understanding Positive and Negative Numbers</u>
	6.NS.7c Lesson Mod 3	Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.			<p>NS.6</p> <ul style="list-style-type: none"> • <u>Introduction to Integers</u>
	6.NS.7d Lesson Mod 3	Distinguish comparisons of absolute value from statements about order.			<p>NS.6a</p> <ul style="list-style-type: none"> • <u>Understand the opposite of a number by looking at a number line</u> • <u>Understand the opposites of fractions by looking at a number line</u> • <u>Rewrite a fraction as a decimal using division</u> • <u>Rewrite a fraction as a repeating decimal using division</u> • <u>Rewrite decimals as fractions by using equivalent fractions</u> • <u>Locate positive rational numbers using a number line</u> • <u>Locate rational numbers using a number line</u>
	6.NS.6b Lesson Mod 3 L 14-19	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 one or both axes.			<p>Lesson</p> <ul style="list-style-type: none"> • <u>Introduction to Integers</u> • <u>Absolute Value</u> • <u>Integer Addition</u> • <u>Integer Subtraction</u>
	6.NS.8 Lesson Mod 3 L 19	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.			<p>Worksheets</p> <ul style="list-style-type: none"> • <u>Understand A Rational Number As A Point</u>
	6.G.3	Draw polygons in the coordinate plane given			<p>NS.6b</p> <ul style="list-style-type: none"> • <u>Find the value of a number using its distance</u>

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	<p>Lesson Mod 5 L 7-10</p>	<p>coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.</p>		<p>and direction from zero</p> <ul style="list-style-type: none"> • Find opposite numbers on the number line • Locate a point on the coordinate plane • Determine the quadrant of a point • Predict the reflection of a point by changing values
	<p>EE.9 Lesson</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>		<ul style="list-style-type: none"> • Understand the coordinate plane as horizontal and vertical number lines • Graph points on a coordinate plane • Graph rational numbers on a coordinate plane • Reflect points over the x and y axes • Translate shapes across the x and y axes <p>Worksheets</p> <ul style="list-style-type: none"> • Understand Signs of Numbers in Ordered Pairs
	<p>RP.1 Lesson Mod 1 L 1-2</p>	<p>Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.</p>		<p>NS.6c</p> <ul style="list-style-type: none"> • Understand the coordinate plane as horizontal and vertical number lines • Graph points on a coordinate plane • Graph rational numbers on a coordinate plane • Reflect points over the x and y axes • Translate shapes across the x and y axes
	<p>RP.2 Lesson L 3-9</p>	<p>Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship</p>		<ul style="list-style-type: none"> • Understand the opposite of a number by looking at a number line • Understand the opposites of fractions by looking at a number line
	<p>RP.3a Lesson Mod 1 L 10-15</p>	<p>Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.</p>		<ul style="list-style-type: none"> • Rewrite a fraction as a decimal using division • Rewrite a fraction as a repeating decimal using division • Rewrite decimals as fractions by using equivalent fractions
	<p>RP.3b Lesson Mod 1 L 16-18</p>	<p>Solve unit rate problems including those involving unit pricing and constant speed</p>		<ul style="list-style-type: none"> • Locate positive rational numbers using a number line • Locate rational numbers using a number line • Compare fractions: using less than 1/2 or more than 1/2
	<p>RP.3.d Lesson Mod 1 L 19-20</p>	<p>Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</p>		<p>Worksheets</p> <ul style="list-style-type: none"> • Coordinate Graphing and Position <p>NS.7a</p> <ul style="list-style-type: none"> • Understand the relationship between two numbers using a number line • Understand the relationship between two

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	<p>RP.3.c Lesson Mod 1 L 24-29</p>	<p>Find a percent of a quantity as a rate per 100 (e.g., 30 % of a quantity means 30/100 times the quantity)</p>	<p><u>negative numbers using a number lines</u></p> <ul style="list-style-type: none"> • <u>Compare two positive or negative numbers in real-world situations</u> • <u>Compare more than two positive or negative numbers in real-world situations</u> <p>Lesson</p> <ul style="list-style-type: none"> • <u>Comparing and Ordering Integers</u> <p>Worksheets</p> <ul style="list-style-type: none"> • <u>Inequalities and Numbers Lines</u> <p>NS.7b</p> <ul style="list-style-type: none"> • <u>Understand the relationship between two numbers using a number line</u> • <u>Understand the relationship between two negative numbers using a number lines</u> • <u>Compare two positive or negative numbers in real-world situations</u> • <u>Compare more than two positive or negative numbers in real-world situations</u> <p>Lessons</p> <ul style="list-style-type: none"> • <u>Comparing and Ordering Integers</u> <p>Worksheets</p> <ul style="list-style-type: none"> • <u>Ordering For Rational Numbers</u> <p>NS.7c</p> <ul style="list-style-type: none"> • <u>Find absolute value using a number line</u> • <u>Use a number line to understand the relationship between rational numbers and absolute value</u> • <u>Describe negative values with words</u> • <u>Interpret absolute value in real-world situations</u> • <u>Use a number line to understand how while the value of a negative number decreases, its absolute value increases</u> <p>Lesson</p> <ul style="list-style-type: none"> • <u>Working with Absolute Value</u> <p>NS.7d</p> <ul style="list-style-type: none"> • <u>Find absolute value using a number line</u> • <u>Use a number line to understand the relationship between rational numbers and absolute value</u> • <u>Describe negative values with words</u> • <u>Interpret absolute value in real-world</u>
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				<p style="text-align: right;"><u>situations</u></p> <ul style="list-style-type: none"> • <u>Use a number line to understand how while the value of a negative number decreases, its absolute value increases</u> <p>Lesson</p> <ul style="list-style-type: none"> • <u>Introduction to Integers</u> <p>Worksheets</p> <ul style="list-style-type: none"> • <u>Absolute Value in Word Problems</u> <p>NS.8</p> <ul style="list-style-type: none"> • <u>Graph points in any quadrant</u> • <u>Write coordinate pairs for points</u> • <u>Use absolute value to find distances between points</u> • <u>Find the distance between two points in different quadrants</u> • <u>Find the length and width of a rectangle given four points on the coordinate plane</u> • <u>Graph and mathematical problems using a coordinate plane</u> • <u>Graph and solve real-world problems using a coordinate plane</u> <p>Worksheets</p> <ul style="list-style-type: none"> • <u>Using Graphs To Solve Real World Problems</u> <p>G.3</p> <ul style="list-style-type: none"> • <u>Draw polygons using given coordinates as vertices</u> • <u>Find perimeter and area by finding the length of sides by comparing coordinates</u> • <u>Determine unknown ordered pairs using the characteristics of polygons</u> • <u>Find distances on a map by comparing ordered pairs</u> <p>Worksheets</p> <ul style="list-style-type: none"> • <u>Polygons in the Coordinate Plane</u> <p>EE.9</p> <ul style="list-style-type: none"> • <u>Identify independent and dependent variables</u> • <u>Relate independent and dependent variables using a function table</u> • <u>Show the relationship between variables using a graph</u> • <u>Relate variables using an equation</u> • <u>Identify variables and their relationship in a</u>
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				<ul style="list-style-type: none"> • real-world situation • Identify variables and their relationship in a table • Identify variables and their relationship in a graph • Convert real world situations into equations using models • Write equation of a graph using a table • Create equivalent algebraic representations (table, graph, equation, word problem). <p>Worksheets</p> <ul style="list-style-type: none"> • Using Variables to Represent Two Quantities <p>RP.1</p> <ul style="list-style-type: none"> • Visualize part-to-part ratios using pictures • Visualize part-to-total ratios using pictures • Classify ratios using a decision tree • Describe a picture using ratio language • Convert between part-to-part and part-to-total ratios by drawing a picture • Understanding ratios and fractions by analyzing a picture • Simplify ratios by finding patterns in a picture • Express a ratio in the simplest form <p>Lessons</p> <ul style="list-style-type: none"> • Writing Fractions as Percents • Writing Percents as Fractions <p>Worksheets</p> <ul style="list-style-type: none"> • The Concept of Ratios • Identify part-to-part ratios using a diagram • Identify part-to-total ratios using a diagram • Identify all types of ratios using a diagram • Understand the difference between fractions and ratios • Understand the importance of order in ratios • Identify implied information in part-to-part ratios • Identify implied information in part-to-total ratios • Create equivalent ratios • Simplify ratios using common factors <p>RP.2a</p>
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