## 6th Grade Math

## **Ratios and Proportional Relationships**

		Proficiency Indicators			
Trimester	Standard	1 Below Grade Level Expectations	<b>2</b> Approaching Grade Level Expectations	<b>3</b> Meets Grade Level Expectations	<b>4</b> Exceeds Grade Level Expectations
1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. 6.RP.A.1	The student is seldom able to understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak."	The student is sometimes able to understand the concept of a ratio and uses ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak."	The student usually understands the concept of a ratio and uses ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak."	The student is able to understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak."
1	Understand the concept of a unit rate a/b associated with a ratio a:b when b is not equal to 0, and use rate language in the context of a ratio relationship. 6.RP.A.2	The student is seldom able to understand the concept of a unit rate a/b associated with a ratio a:b when b is not equal to 0, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is <sup>3</sup> / <sub>4</sub> cup of flour for each cup of sugar."	The student is sometimes able to understand the concept of a unit rate a/b associated with a ratio a:b when b is not equal to 0, and uses rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is <sup>3</sup> / <sub>4</sub> cup of flour for each cup of sugar."	The student usually understands the concept of a unit rate a/b associated with a ratio a:b when b is not equal to 0, and uses rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is <sup>3</sup> / <sub>4</sub> cup of flour for each cup of sugar."	The student is able to understand the concept of a unit rate a/b associated with a ratio a:b when b is not equal to 0, and uses rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is <sup>3</sup> / <sub>4</sub> cup of flour for each cup of sugar."
1	Use ratio and rate reasoning to solve real-world and mathematical problems. 6.RP.A.3	The student is seldom able to use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or	The student is sometimes able to use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or	The student usually uses ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	The student is able to use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or

	equations.	equations.		equations.
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	The Number System					
Trimester	Ctondard	Proficiency Indicators				
Irimester	Standard	1 Below Grade Level Expectations	<b>2</b> Approaching Grade Level Expectations	<b>3</b> Meets Grade Level Expectations	<b>4</b> Exceeds Grade Level Expectations	
2	Apply and extend previous understandings of multiplication and division to divide fractions by fractions. 6.NS.A.1	The student is seldom able to apply and extend previous understandings of multiplication and division to divide fractions by fractions; interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	The student is sometimes able to apply and extend previous understandings of multiplication and division to divide fractions by fractions; interprets and computes quotients of fractions, and solves word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	The student usually applies and extends previous understandings of multiplication and division to divide fractions by fractions; interprets and computes quotients of fractions, and solves word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	The student is able to apply and extend previous understandings of multiplication and division to divide fractions by fractions; interprets and computes quotients of fractions, and solves word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	
1, 2	Compute fluently with multi-digit numbers and find common factors and multiples. 6.NS.B.2, 6.NS.B.3, 6.NS.B.4	The student is seldom able to fluently divide multi-digit numbers using the standard algorithm; fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm; find the GCF of two whole numbers less than or equal to 100 and LCM of two numbers less than or equal to 12; use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	The student is sometimes able to fluently divide multi-digit numbers using the standard algorithm; fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm; find the GCF of two whole numbers less than or equal to 100 and LCM of two numbers less than or equal to 12; use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	The student usually fluently divides multi-digit numbers using the standard algorithm; fluently adds, subtracts, multiplies, and divides multi-digit decimals using the standard algorithm; finds the GCF of two whole numbers less than or equal to 100 and LCM of two numbers less than or equal to 12; uses the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	The student is able to fluently divide multi-digit numbers using the standard algorithm; fluently adds, subtracts, multiplies, and divides multi-digit decimals using the standard algorithm; finds the GCF of two whole numbers less than or equal to 100 and LCM of two numbers less than or equal to 12; uses the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	

extend previous understandings of numbers to the system of rational numbers.able to understand that positive and negative numbers are used together to describe quantitiesab po numbers are used together to describe quantitiesnu nu to having opposite directions6.NS.C.5, 6.NS.C.6, 6.NS.C.7, 6.NS.C.8negative numbers to represent quantities in represent quantities in represent quantitiesrepresent explaining the meaning of 0 in each situation; understand a rational number line; extend number line; extend number line gardes to from previous grades to from represent points on the line represent points on the line represent points on the line represent points on the line represent points on the line graphing point in all four graphing point	ble to understand that	understands that positive	understand that positive
	positive and negative	and negative numbers are	and negative numbers are
	numbers are used together	used together to describe	used together to describe
	o describe quantities	quantities having opposite	quantities having opposite
	aving opposite directions	directions or values; uses	directions or values; use
	or values; uses positive	positive and negative	positive and negative
	and negative numbers to	numbers to represent	numbers to represent
	epresent quantities in	quantities in real-world	quantities in real-world
	eal-world contexts,	contexts, explaining the	contexts, explaining the
	explaining the meaning of 0	meaning of 0 in each	meaning of 0 in each
	in each situation;	situation; understands a	situation; understand a
	understands a rational	rational number as a point	rational number as a point
	number as a point on the	on the number line;	on the number line; extend
	number line; extends	extends number line	number line diagrams and
	number line diagrams and	diagrams and coordinate	coordinate axes familiar
	coordinate axes familiar	axes familiar from previous	from previous grades to
	from previous grades to	grades to represent points	represent points on the line
	epresent points on the line	on the line and in the plane	and in the plane with
	ind in the plane with	with negative number	negative number
	negative number	coordinates; understands	coordinates; understand
	coordinates; understands	ordering and absolute	ordering and absolute
	ordering and absolute	value of rational numbers;	value of rational numbers;
	alue of rational numbers;	solves real-world and	solves real-world and
	olves real-world and	mathematical problems by	mathematical problems by
	nathematical problems by	graphing point in all four	graphing point in all four
	praphing point in all four	quadrants of the coordinate	quadrants of the coordinate
	quadrants of the coordinate	plane; includes use of	plane; include use of
	alue to find distances	coordinates and absolute	coordinates and absolute
	petween points with the	value to find distances	value to find distances
	ame first coordinate or the	between points with the	between points with the
	ame first coordinate or the	same first coordinate or the	same first coordinate or the
	ame second coordinate	same second coordinate.	same second coordinate.

Expressions and Equations						
Trimester	Standard	Proficiency Indicators				
		1 Below Grade Level Expectations	<b>2</b> Approaching Grade Level Expectations	<b>3</b> Meets Grade Level Expectations	4 Exceeds Grade Level Expectations	
2, 3	Apply and extend previous	The student is seldom able to write and evaluate	The student is sometimes able to write and evaluate	The student usually writes and evaluates	The student is able to write and evaluate	

	understandings of arithmetic to algebraic expressions. 6.EE.A.1, 6.EE.A.2, 6.EE.A.3, 6.EE.A.4	numerical expressions involving whole-number exponents; write, read, and evaluate expressions in which letters stand for numbers; apply the properties of operations to generate equivalent expressions; identify when two expressions are equivalent.	numerical expressions involving whole-number exponents; write, read, and evaluate expressions in which letters stand for numbers; apply the properties of operations to generate equivalent expressions; identify when two expressions are equivalent.	numerical expressions involving whole-number exponents; writes, reads, and evaluates expressions in which letters stand for numbers; applies the properties of operations to generate equivalent expressions; identifies when two expressions are equivalent.	numerical expressions involving whole-number exponents; write, read, and evaluate expressions in which letters stand for numbers; apply the properties of operations to generate equivalent expressions; identify when two expressions are equivalent.
2, 3	Reason about and solve one-variable equations and inequalities. 6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.EE.B.8	The student is seldom able to understand solving an equation or inequality as a process of answering a question; use substitution to determine whether a given number in a specified set makes an equation or inequality true; use variables to represent numbers and write expressions when solving a real-world problem; write an inequality to represent a constraint or condition in a real-world or mathematical problem; recognize that inequalities of the form x>c or x <c have="" infinitely="" many<br="">solutions; represent solutions of such inequalities on number line diagrams.</c>	The student is sometimes able to understand solving an equation or inequality as a process of answering a question; use substitution to determine whether a given number in a specified set makes an equation or inequality true; use variables to represent numbers and write expressions when solving a real-world problem; write an inequality to represent a constraint or condition in a real-world or mathematical problem; recognize that inequalities of the form x>c or x <c have="" infinitely="" many<br="">solutions; represent solutions of such inequalities on number line diagrams.</c>	The student usually understands solving an equation or inequality as a process of answering a question; uses substitution to determine whether a given number in a specified set makes an equation or inequality true; uses variables to represent numbers and write expressions when solving a real-world problem; writes an inequality to represent a constraint or condition in a real-world or mathematical problem; recognizes that inequalities of the form x>c or x <c have="" infinitely="" many<br="">solutions; represents solutions of such inequalities on number line diagrams.</c>	The student is able to understand solving an equation or inequality as a process of answering a question; use substitution to determine whether a given number in a specified set makes an equation or inequality true; use variables to represent numbers and write expressions when solving a real-world problem; writes an inequality to represent a constraint or condition in a real-world or mathematical problem; recognize that inequalities of the form x>c or x <c have="" infinitely="" many<br="">solutions; represent solutions of such inequalities on number line diagrams.</c>
2, 3	Represent and analyze quantitative relationships between dependent and independent variables. 6.EE.C.9	The student is seldom able to 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	The student is sometimes able to 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	The student usually uses variables to represent two quantities in a real-world problem that change in relationship to one another; writes an equation to express one quantity, thought of as the dependent variable, in	The student is able to 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;	independent variable;	independent variable;	independent variable;
analyze the relationship	analyze the relationship	analyzes the relationship	analyze the relationship
between the dependent	between the dependent	between the dependent	between the dependent
and independent variables	and independent variables	and independent variables	and independent variables
using graphs and tables,			
and relate these to the	and relates these to the	and relates these to the	and relates these to the
equation.	equation.	equation.	equation.

Geometry						
Trimester	Oton doud		Proficiency	/ Indicators		
Irimester	Standard	1 Below Grade Level Expectations	<b>2</b> Approaching Grade Level Expectations	<b>3</b> Meets Grade Level Expectations	4 Exceeds Grade Level Expectations	
1, 2, 3	Solve real world and mathematical problems involving area, surface area, and volume. 6.G.A.1, 6.G.A.2, 6.G.A.3, 6.G.A.4	The student is seldom able to find area of triangles, quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world mathematical problems; find the volume of rectangular prisms by packing it with unit cubes and relate the volume to multiplication of the edge lengths; draw polygons in a coordinate plane; use coordinates to find the length of a side joining points; represent 3-D figures using nets and use the nets to find the surface area.	The student is sometimes able to find the area of triangles, quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world mathematical problems; find the volume of rectangular prisms by packing it with unit cubes and relates the volume to multiplication of the edge lengths; draw polygons in a coordinate plane; use coordinates to find the length of a side joining points; represent 3-D figures using nets and use the nets to find the surface area.	The student usually finds area of triangles, quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; applies these techniques in the context of solving real-world mathematical problems; finds the volume of rectangular prisms by packing it with unit cubes and relates the volume to multiplication of the edge lengths; draws polygons in a coordinate plane; uses coordinates to find the length of a side joining points; represents 3-D figures using nets and use the nets to find the surface area.	The student is able to find the area of triangles, quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world mathematical problems; find the volume of rectangular prisms by packing it with unit cubes and relates the volume to multiplication of the edge lengths; draw polygons in a coordinate plane; use coordinates to find the length of a side joining points; represent 3-D figures using nets and use the nets to find the surface area.	

## **Statistics and Probability**

Trimester	Oton doud	Proficiency Indicators				
Trimester	Standard	1 Below Grade Level Expectations	<b>2</b> Approaching Grade Level Expectations	<b>3</b> Meets Grade Level Expectations	<b>4</b> Exceeds Grade Level Expectations	
3	Develop understanding of statistical variability. 6.SP.A.1, 6.SP.A.2, 6.SP.A.3	The student is seldom able to recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answer; understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape; recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	The student is sometimes able to recognizes a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answer; understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape; recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	The student usually recognizes a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answer; understands that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape; recognizes that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	The student is able to recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answer; understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape; recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	
3	Summarize and describe distributions. 6.SP.B.4, 6.SP.B.5	The student is seldom able to display numerical data in plots on a number line, including dot plots, histograms, and box plots; summarize numerical data sets in relation to their context.	The student is sometimes able to display numerical data in plots on a number line, including dot plots, histograms, and box plots; summarize numerical data sets in relation to their context.	The student usually displays numerical data in plots on a number line, including dot plots, histograms, and box plots; summarizes numerical data sets in relation to their context.	The student is able to display numerical data in plots on a number line, including dot plots, histograms, and box plots; summarizes numerical data sets in relation to their context.	