Name	School	Grade	Course/Subject	Number of Students	Interval of Instruction
		7	Math		Sept. 2015 – Mar. 2016

Standards, Rationale, and Assessment Method

Critical Area(s): (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations.

Mathematics | Grade 7

Rationale:

Critical areas are designed to bring focus to the standards in grade 7 by describing the big ideas upon which teachers may build their instruction.

This SGO reflects one of the critical areas within Grade 7:

> (1) Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.
>
> (2) Students develop a unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.

Standards Addressed within this Student Growth Objective:

7th Grade SGO Standards

CCSS.MATH.CONTENT.7.NS.A.1
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.

CCSS.MATH.CONTENT.7.NS.A.1.A
Describe situations in which opposite quantities combine to make 0.

CCSS.MATH.CONTENT.7.NS.A.1.B
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.

CCSS.MATH.CONTENT.7.NS.A.1.C
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.

CCSS.MATH.CONTENT.7.NS.A.1.D
Apply properties of operations as strategies to add and subtract rational numbers.

CCSS.MATH.CONTENT.7.NS.A.2
Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

CCSS.MATH.CONTENT.7.NS.A.2.A
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.

CCSS.MATH.CONTENT.7.NS.A.2.B
Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.

CCSS.MATH.CONTENT.7.NS.A.2.C
Apply properties of operations as strategies to multiply and divide rational numbers.

CCSS.MATH.CONTENT.7.NS.A.2.D
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.

CCSS.MATH.CONTENT.7.NS.A.3
Solve real-world and mathematical problems involving the four operations with rational numbers.[1]
CCSS.MATH.CONTENT.7.RP.A.1
Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in

like or different units.

CCSS.MATH.CONTENT.7.RP.A.2
Recognize and represent proportional relationships between quantities.

CCSS.MATH.CONTENT.7.RP.A.2.A
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.

CCSS.MATH.CONTENT.7.RP.A.2.B
Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

CCSS.MATH.CONTENT.7.RP.A.2.C
Represent proportional relationships by equations.

CCSS.MATH.CONTENT.7.RP.A.2.D
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.

CCSS.MATH.CONTENT.7.RP.A.3
Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

CCSS.MATH.CONTENT.7.EE.A.1
Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

CCSS.MATH.CONTENT.7.EE.A.2
Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

CCSS.MATH.CONTENT.7.EE.B.3
Solve multi-step real-life 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.

CCSS.MATH.CONTENT.7.EE.B.4
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.

CCSS.MATH.CONTENT.7.EE.B.4.A
Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r 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.

CCSS.MATH.CONTENT.7.EE.B.4.B
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.

Assessment Method: Authentic Assessments (Assessment Portfolio) will be used as a tool to measure students' growth. The assessment portfolio incorporates carefully selected practice-forward tasks that reflect higher levels of cognitive complexity. All tasks included in the portfolio will be "practice forward" and rubric-scored.

Starting Points and Preparedness Groupings
Student tiers will be determined using a 4-data point system to develop a baseline index. Each tier will be assigned a target command level.

Data Measures used to Establish Baselines
2014-2015 Unit Assessment Average; weight (.40)
2014-2015 Performance Tasks Average; weight (.10)
2014-2015 Final Grade; weight (.10)
2015-2016 Diagnostic Assessment; weight (.40)

Preparedness Group	Baseline Score
Tier I	< 0.35
Tier 2	0.35 – 0.55
Tier 3	0.55 – 0.75
Tier 4	> 0.75

Student Growth Objective

By March 2016, 70% of students in each preparedness group will meet their assigned target command level for full attainment of the objective as shown in the scoring plan.

Preparedness Group (e.g. 1,2,3)	Number of Students in Each Group	Target Command Level on SGO Assessment Portfolio
Tier 1		2
Tier 2		3
Tier 3		4
Tier 4		4 or 5[1]

[1] It is expected that students in Tier 4 maintain a level of strong command or grow to distinguished command.

Scoring Plan
State the projected scores for each group and what percentage/number of students will meet this target at each attainment level. Modify the table as needed.

Preparedness Group	Student Target Command Level	Teacher SGO Score Based on Percent of Students Achieving Target Score			
		Exceptional (4) **>80%**	Full (3) **70-80%**	Partial (2) **50-69%**	Insufficient (1) **<50%**
Tier 1	2				
Tier 2	3				
Tier 3	4				
Tier 4	4 or 5				

Approval of Student Growth Objective
Administrator approves scoring plan and assessment used to measure student learning.

Teacher _____ Signature_____ Date Submitted_____

Evaluator _____ Signature _____ Date Approved _____

Results of Student Growth Objective
Summarize results using weighted average as appropriate. Delete and add columns and rows as needed.

Preparedness Group	Students at Target Score	Teacher SGO Score	Weight (based on students per group)	Weighted Score	**Total Teacher SGO Score**
Tier 1					
Tier 2					
Tier 3					
Tier 4					

Notes
Describe any changes made to SGO after initial approval, e.g. because of changes in student population, other unforeseen circumstances, etc.

Review SGO at Annual Conference
Describe successes and challenges, lessons learned from SGO about teaching and student learning, and steps to improve SGOs for next year.

Teacher _____ Signature _____ Date _____

Evaluator _____ Signature _____ Date _____