

STUDENT LEARNING OBJECTIVE FORM

Teacher Name: Middle School Math Teacher 1	School: Example Middle School	Grade level: 6 th grade
Content Area: Math	Course Name: NA	Period: 2

Student Population
Total Number of Students: <u>30</u>
Additional Information: All of the students in my 2 nd period sixth grade math class.
Instructional Interval
<input checked="" type="radio"/> Year Semester Other: _____

SLO Components	Description
Student Learning Goal	<p>Learning Goal: Students will apply and use their knowledge of fractions to understand ratio concepts (relationship between 2 quantities, equivalent ratios, unit rate) and use ratio reasoning (tables, number lines, tape diagrams, equations, and equivalent ratios) to solve real world problems and give evidence for their solutions.</p>
Standards Reference	<p>Ratios and Proportional Relationship - Understand ratio concepts and use ratio reasoning to solve problems.</p> <p><i>CCSS.Math.Content.6.RP.A.1.</i> 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." "For every vote candidate A received, candidate C received nearly three votes."</p> <p><i>CCSS.Math.Content.6.RP.A.2.</i> 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. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."¹</p> <p><i>CCSS.Math.Content.6.RP.A.3.</i> 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.</p> <p><i>CCSS.Math.Content.6.RP.A.3.a.</i> 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> <p><i>CCSS.Math.Content.6.RP.A.3.b.</i> Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</p> <p><i>CCSS.Math.Content.6.RP.A.3.c.</i> Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $30/100$ times the quantity); solve problems involving finding the whole, given a part and the percent.</p> <p><i>CCSS.Math.Content.6.RP.A.3.d.</i> Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</p>
Rationale for the Learning Goal	As students move into seventh grade they will be expected to move from understanding ratio concepts to writing equations that represent those relationships and solving multi-step problems involving percent change or unit rates of change. They will need to have built a firm foundation in ratio reasoning to be ready for this next step.

SLO Components		Description
		<p>The depth of knowledge for my learning goal is a 3. It is a 3 because students will not only be asked for a solution but also to give evidence for their solutions and justify their answers. I believe that this makes the depth of knowledge of 3 because students will be given non-routine problems to solve and then explain their thinking. Explaining, supporting, and justifying an answer with evidence requires higher level thinking.</p> <p>Several data sources collected at the beginning of the school year indicate this learning goal is a need for my students. This includes the following:</p> <ul style="list-style-type: none"> For the fall administration of NEWA MAP, my students' scores in the goal areas most closely related to this learning goal were as follows: Number Sense, Properties, and Operations: 55% of class scored Low or LoAvg; and Patterns, Functions, and Algebraic Structures: 64% of scored Low or LoAvg. Pre-Test/Review on operations with fractions class average 70%. Translation of word problems into simple expressions that included fractions -- about 60% of my students were able to do this.
	Success Criteria	<p>The success criteria for my learning goal include the following:</p> <ul style="list-style-type: none"> Make appropriate use of ratios to describe relationships. Find unit rates with at least 80% accuracy. Use unit rates to compare prices and speed with at least 80% accuracy. Use ratio reasoning to solve percent problems with at least 80% accuracy. Use ratio reasoning to convert measurements with at least 80% accuracy. Solve ratio problems by appropriately applying one or more the following tools/strategies: ratio table, tape diagrams, double number lines, and/or equivalent ratios. Provide an explain of solutions that includes appropriate use of the tool/strategy and evidence of steps of reasoning followed in determining the solution that used one or more of the following: ratio table, tape diagrams, doable number lines and/or equivalent ratios.
End of Interval Measures and Scoring	Evidence Sources (Assessment Instruments or Tasks)	<p>The following assessment instruments/tasks will be used at the end of the course to determine the degree to which students have met this learning goal:</p> <ul style="list-style-type: none"> Ratios and Rates Test (requires students to calculate rates and ratios for 20 problems). How Much to Pay Task: Ivan and Jeff buy a package of 8 pens for \$4.00. Ivan wants 5 of the pens, and Jeff wants 3. How much should each student pay? Explain what each person should pay, why, and what you figured that out. Use the space below to solve the problem and plan your writing. Then, write out your solution using complete sentences and your best spelling and grammar. Quiz Question: Cara received an 80% on her final exam. If there were 20 problems total on the final, how many problems did she get correct and incorrect? Show your work and explain your answer.
	Alignment of Evidence to Learning Goal	<p>#1 – The test aligns with the learning goal because the whole test is about ratios, rates, and using ratio reasoning to solve problems. We aligned the test with our learning checklist which is aligned to the Common Core Standards. There are a variety of leveled questions on the test and some which have students explain and/or provide evidence for their answers.</p> <p>#2 – In this task, students are asked to determine how much each person should pay for</p>

SLO Components		Description
		<p>the pens. This requires using ratio reasoning, unit rate, and then an explanation of what they did and why. Again, this addresses the learning goal as well as the depth of knowledge because of the explanation/evidence they have to provide.</p> <p>#3 – This is a real life problem that is very applicable to students. In order to solve this again they need to use ratio reasoning and one of the strategies identified above which matches my learning goal.</p>
	Collection and Scoring (attach scoring guide/ rubric)	<p>Students will receive the following scores:</p> <ul style="list-style-type: none"> Ratios and Rates Text scores will be % correct. 80% correct will constitute evidence the students have met the learning goal. Between 60 and 79% correct will constitute partially meeting; over 80% correct will constitute “exceeding” the learning goal. Both the “How Much to Pay Task” and the quiz question will be scored using a rubric. The rubric will include the following criteria: accuracy of response, steps followed, appropriate application of strategy to solve ratio problems, and quality of explanation for solution. Students will receive a rating of 1 (lowest) to 4 (highest) with a rating of ‘3’ indicating they have met the learning goal. <p>Students’ final performance rating based on these three scores will be calculated as follows:</p> <ul style="list-style-type: none"> Did not meet: Below 60% on the Rates and Ratios Text, a rating of 1 on the How much to Pay task and Quiz Question. Partially met: Between 60% and 79% correct on the Rates and Ratios Test, A rating of 2 or higher on the How Much to Pay Task and the Quiz Question (not 3 or higher on both). Met: 80% or more correct on the Rates and Ratios Test, and at least a rating of 3 on both the How Much to Pay Task and the Quiz Question (but not a rating of 4 on both). Exceeded: 90% or more correct on Rates and Ratios Text, and a rating of 4 on both the How Much to Pay Task and the Quiz Question.
Performance Targets	Baseline Evidence Sources (at the beginning of interval)	<p>Baseline data sources for this growth goal includes the following:</p> <ul style="list-style-type: none"> Fall MAP assessment results (over-all RIT score/performance level) projected proficiency category. Review Quiz on operations with fractions (students completed during first month of school). Two tasks which required students to translate word problems into simple expressions that included fractions.
	Performance Groups	<p>Based on their performance on the baseline data sources, three student groups were identified:</p> <ul style="list-style-type: none"> Under-Prepared (10): Students whose MAP RIT scores were projected to be unsatisfactory, Received less than 60% on the Operations with Fractions Review Quiz and who were not able to translate word problems into simple expressions that included fractions. Prepared (15): Students whose MAP RIT scores were projected to be partially, received between 60% and 75% on the Operations with Fractions Review Quiz and who were able to translate one of the two word problems into a simple expression with fractions. Accelerated (5): Students, whose MAP RIT scores were projected to be proficient,

SLO Components		Description
		received 75% or better on the Operations with Fractions Review Quiz, and who were able to translate both word problems into a simple expression with fractions.
	Performance Targets	<p>The following performance targets have been set by instructional group:</p> <ul style="list-style-type: none"> • All of the students who were under prepared will all at least partially meet the growth goal. • Half of the students who were under prepared will meet the learning goal. • All of the students who were prepared at the beginning of class will all at least meet the growth goal. • All of the students who were accelerated at the beginning of the class will all at least meet the learning goal. • Two or more will exceed the learning goal.
	Rationale for Targets less than meeting the goal	
Progress Monitoring	Check Points (Learning Progression)	Associated Progress Monitoring Evidence Sources (Assessment Instruments or Tasks used during the interval)
	<ul style="list-style-type: none"> • Students accurately apply the four operations to fractions. • Students use ratios to describe relationships. • Students identify different types of ratios (part to part or part to whole) and manipulate between different types of ratios. • Students use ratio tables, tape diagrams, percent, and double number lines to solve ratio problems. • Students practice solving ratio problems that are missing the part, percent, or whole. • Students define and find unit rates. 	<ul style="list-style-type: none"> • Operations with Fractions pre-test; Translation of word problems into simple expressions with fractions. • Skill Page 1, Ratio Leveled HW Assignment, Ratio Quiz #1. • Different types of ratios paper, Ratio Quiz #1. • Solving Ratio Problems Paper/Notes, Solving Ratios HW #1 and 2, Ratio Quiz #2. • Missing percent/part/whole stations, Ratio Quiz #3. • Unit rate entrance ticket, Who is Fastest problem, Rate/Unit Rate practice problems.
	Instructional Strategies	I will use the results of the progress monitoring data sources to adjust pacing of content and to determine if some students need additional support. I have built-in warm-up problems for the first 5-10 minutes during each class session when I can either give students additional practice on tasks they struggled with in an earlier class or accelerated tasks for those who are ahead. All of the six grade math teachers at the school have the same growth goal and use the same quizzes as part of teaching ratios. We meet together every other week to review student work and the pacing of instruction within and across instructional units. This will be where we review student progress towards our SLO goal. We have agreed to provide after-school help sessions once a week for students who are not making progress towards all of our major year-long goals including this SLO Learning Goal.
Results	Student Performance Results	TBD
	Targets Met	TBD

SLO Components		Description
	Teacher Performance	<p>Teacher performance will be based on the following -- each student performance target met will be worth 3 points for a possible total of 15 points earned from this learning goal. Points will be distributed as follows:</p> <ul style="list-style-type: none">• 5 targets met = 15 points• 4 targets met = 12 points• 3 targets met = 9 points• 2 targets met = 6 points• 1 target met = 3 points• 0 targets met = 0 points