

Ratios and Proportions: Grade 6

Stage 1 Desired Results		
ESTABLISHED GOALS: <u>Competencies:</u> - Students will demonstrate the ability to reason with quantities by recognizing and applying proportional relationships. - Students will demonstrate the ability to solve equations and inequalities by applying the properties of equality, inequality and rational expressions. - Students will demonstrate the ability to model real world problems by building and analyzing the appropriate expression, equation, or function. - Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials. - Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences. - Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style. <u>Content Standards:</u> 6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. 6.RP.A.2 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. 6.RP.A.3 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. - 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. - Solve unit rate problems including those involving unit pricing and constant speed. - 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. - Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. - MP1 Make sense of problems and persevere in solving them. - MP2 Reason abstractly and quantitatively. - MP4 Model with mathematics.	Transfer	
	Students will be able to independently use their learning to make informed decisions involving the relationship between two quantities.	
	Meaning	
	ENDURING UNDERSTANDINGS Students will understand that... - maintaining a relationship is essential to proportional reasoning. - in order to compare and determine equivalent ratios, proportional reasoning must be used.	ESSENTIAL QUESTIONS How does what you compare determine the way you compare it?
	Acquisition	
	Students will know... - that ratios can be expressed as $a:b$ and fractions a/b with $b \neq 0$, decimals, or percents. - that percent is a ratio of a number compared to 100. - that a conversion factor is always equal to one, and this is why conversion factors can be used to change units (the multiplicative identity). <u>vocabulary:</u> convert, equivalent ratios, transform, percent, unit, rate, unit price, ratio, unit rate, coordinate plane	Students will be skilled at... - identifying ratios. - creating ratio tables and solving for missing values. - solving unit rate problems, including those involving unit pricing and constant speed. - determining percent of a quantity - solving percent problems involving finding the whole, given a part and the percent - using ratio reasoning to convert measurement units. - graphing pairs of values from ratio tables in the coordinate plane. - using tape diagrams and double number line diagrams to model ratios.

• MP7 Look for and make use of structure. • MP8 Look for and express regularity in repeated reasoning.		
Content Area Literacy Standards		21st Century Skills
• RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. • RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 6-8 texts and topics</i>. • RST.6-8.5 Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.		• <i>reason effectively</i> • <i>use systems thinking</i> • <i>solve problems</i> • <i>use and manage information</i> • <i>access and evaluate information</i>

Stage 2 - Evidence	
<i>Evaluative Criteria</i>	<i>Assessment Evidence</i>
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
<i>Summary of Key Learning Events and Instruction</i>	
Language Arts Integration	Mathematics Integration
• 1.OA.1 Use	• 1.OA.1 Use
Technology Integration	District Materials
• 1.OA.1 Use	

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