Domain: Ratios and Proportional Relationships

Grade: 6

Core Content

Cluster Title: Understand ratio concepts and use ratio reasoning to solve problems.

Standard 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.

c. 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.

MASTERY Patterns of Reasoning:

Conceptual:

Understand that a percent is rate per 100 and can be represented using tools such as tables of equivalent ratios, tape diagrams, double number line diagrams, and equations.

Understand that percentage-based rate problems compare two different units where one of the units is 100. Understand that establishing connections between tools allow for extended reasoning and synthesis of the concept of ratios and rates (e.g., How do tape diagrams and double number lines show rate reasoning given the same context?).

Procedural:

Writing a percent as a rate over 100.

Finding the percent of a number using rate methods developed in 6.RP.3b.

Given the parts and a percent, determine the whole using tools identified above.

Representational:

Represent the relationship of part to whole to describe percents using model.

Supports for Teachers

Critical Background Knowledge

Conceptual:

Understand the concept of rate as detailed in 6.RP.3b.

Understand whole and parts in the context of a ratio.

Code: 6.RP

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Procedural:

Use unit pricing and constant speed to solve problems. Use unit rates to solve problems.

Representational:

Represent unit rates with models.

Academic Vocabulary and Notation

%, percent

Instructional Strategies Used		Resources Used
1. Model using a hundreds grid. Color in 30 units and have		Coloring percent activity:
students write it as a fraction and percent.		http://www.softschools.com/math/percent/games/
2 Use double number lines and tape diagrams in which the whole		
is 100 to find the rate per hundred.		NLVM percent virtual manipulative:
· ·		http://nlvm.usu.edu/en/nav/frames_asid_160_g_2_t_1
		.html
		Tape Diagrams:
		http://mathgpselaboration.blogspot.com/2010/04/mp5
		-tape-diagrams.html
Assessment Tasks Used		
Skill-based Task:	Problem Task:	
What is 25% of 60?	Stop and Shop has pants for \$30 with a 10% discount, while	
72% of what number is 300?	Stay and Shop has pants for \$45 with a 20% discount. Which store has	
		petter price? Use a table of equivalent values, double
		tape diagram to solve and explain your reasoning.
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