Topic C
Unit Rates

6.RP.A.2, 6.RP.A.3b, 6.RP.A.3d

Focus Standards:	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. *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."*
	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.
		b. 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?*
		d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
Instructional Days:	8	
Lesson 16:	From Ratios to Rates (E)[1]	
Lesson 17:	From Rates to Ratios (S)	
Lesson 18:	Finding a Rate by Dividing Two Quantities (M)	
Lessons 19–20:	Comparison Shopping—Unit Price and Related Measurement Conversions (P, E)	
Lessons 21–22:	Getting the Job Done—Speed, Work, and Measurement Units (P, E)	
Lesson 23:	Problem Solving Using Rates, Unit Rates, and Conversions (S)	

[1]Lesson Structure Key: **P**-Problem Set Lesson, **M**-Modeling Cycle Lesson, **E**-Exploration Lesson, **S**-Socratic Lesson

In Topic C, students apply their understanding of ratios and the *value of a ratio* as they come to understand that a ratio relationship of 5 *miles to* 2 *hours* corresponds to a rate of 2.5 *miles per hour*, where the unit rate is the numerical part of the rate, 2.5, and miles per hour is the newly formed unit of measurement of the rate (**6.RP.A.2**). Throughout Topic C, students continue to make use of the representations and diagrams of Topics A and B as they investigate the concepts of this topic within the context of real-world rate problems. In Lesson 16, students develop their vocabulary and conceptual understanding of rate as they work through and discuss problems that require expressing simple ratios as rates using phrases such as 'per', 'for each' and 'for every'. In Lesson 17, students reinforce their understanding as they see problems for the first time where the ratio relationship is expressed in rate form. Students are asked to verbalize and depict the underlying ratio relationship as a collection of equivalent ratios.

In Lesson 18, students generalize the process for finding a rate and define the term *unit rate* relating it to the *value of a ratio*. In the remaining lessons of Topic C, students solve unit rate problems involving unit pricing, constant speed, and constant rates of work (**6.RP.A.3b**). They combine their new understanding of rate to connect and revisit concepts of converting among different-sized standard measurement units (**5.MD.A.1**). They then expand upon this background as they learn to manipulate and transform units when multiplying and dividing quantities (**6.RP.A.3d**). In Lessons 19–20, students are conscientious consumers, and comparison shop by comparing unit prices and converting measurement units as needed. For instance, when comparing a 10-ounce bag of salad that sells for $2.25 to a 1-pound bag of salad that retails for $3.50, students recognize that in addition to finding a unit price, they must convert pounds to ounces for an accurate comparison.

In Lessons 21–22, students conduct real-world simulations that generate rates related to speed and work. In doing so, students begin to view math as a tool for solving real-life problems. Topic C concludes with Lesson 23, in which students draw upon their experiences in previous modeling lessons to demonstrate their ability to problem-solve using rates, unit rates, and conversions.