



Topic A:

Representing and Reasoning About Ratios

6.RP.A.1, 6.RP.A.3a

Focus Standard:	6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. <i>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.”</i>
	6.RP.A.3a	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.
Instructional Days:	8	
Lessons 1–2:	Ratios (S, E) ¹	
Lessons 3–4:	Equivalent Ratios (P, P)	
Lessons 5–6:	Solving Problems by Finding Equivalent Ratios (P, P)	
Lesson 7:	Associated Ratios and the Value of a Ratio (P)	
Lesson 8:	Equivalent Ratios Defined Through the Value of a Ratio (P)	

In Topic A, students are introduced to the concepts of ratios. Their previous experience solving problems involving multiplicative comparisons, such as “Max has three times as many toy cars as Jack” (4.OA.A.2), serves as the conceptual foundation for understanding ratios as a multiplicative comparison of two or more numbers used in quantities or measurements (6.RP.A.1). In the first two lessons, students develop fluidity in using multiple forms of ratio language and ratio notation as they read about or watch video clips about ratio relationships and then discuss and model the described relationships. Students are prompted to think of, describe, and model ratio relationships from their own experience. Similarly, Lessons 3 and 4 explore the idea of equivalent ratios. Students read about or watch video clips about situations that call for establishing an equivalent ratio. Students discuss and model the situations to solve simple problems of finding one or more equivalent ratios.

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

The complexity of problems increases as students are challenged to find values of quantities in a ratio given the total desired quantity or given the difference between the two quantities. *For example, “If the ratio of boys to girls in the school is 2:3, find the number of girls if there are 300 more girls than boys.”* As the first topic comes to a close, students develop a precise definition of the *value of a ratio* $a:b$, where $b \neq 0$, as the value $\frac{a}{b}$, applying previous understanding of fraction as division (**5.NF.B.3**). Students are then challenged to express their understanding of ratio equivalence using the newly defined term, value of a ratio. They conclude that equivalent ratios are ratios having the same value.