

# MP2a-Proportionality: Ratios and Rates

Content Area: **Math**  
Course(s): **Math 6 ACC**  
Time Period: **Marking Period 2**  
Length: **Weeks 1-6 Go Math! Advanced Unit 3**  
Status: **Published**

## Essential Questions

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- How can you use ratios and rates to solve real world problems?
- How can you use percents to solve real world problems?

## Big Ideas

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- Understand ratio concepts and use ratio reasoning to solve problems.
- Apply and extend previous understandings of numbers to the system of rational numbers.
- Analyze proportional relationships and use them to solve real-world and mathematical problems (Percent).

## Technology Integration

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8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.

8.1.8.NI.3: Explain how network security depends on a combination of hardware, software, and practices that control access to data and systems.

Activity:

1) Khan Academy could be used as reinforcement or a flipped classroom method. For ratios and proportions students are learning the material and strategies. Khan academy allows students to work at their own pace through the video and pause and rewind to make sure they understand. They are also given practice problems to check for understanding, for each topic under the Proportional Relations chapter. As students take the quizzes they are either advised to advance or rewatch the lesson. After all lessons are watched/reviewed, there is a unit test for students to take. Student's scores can be tracked through the class account and it drives instruction based on which topic students are struggling with.

2)Google Slides Presentation on a restaurant project. Students research other restaurants and deals to create a

menu with realistic pricing. Students create scenarios of people visiting their restaurant including tax, using coupons or receiving a discount. In their scenarios, students also calculate the tip, subtotals, discounted price, discount, and final total the guests will pay.

## **Diversity Integration**

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Objective: Students will be able to use proportional relationships to scale a recipe for a cultural meal.

### Description of Activity

Students will pick two recipes from a country and use proportional relationships to adjust the serving size to serve the entire class.

## **Enduring Understandings**

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### Ratios and Proportional Relationships

6.RP.1 [M] 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.”

6.RP.2 [M] 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  $\frac{3}{4}$  cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”

6.RP.3 [M] 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.

6.RP.3a [M] 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.

6.RP.3b [M] 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?

6.RP.3c [M] Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means  $\frac{30}{100}$  times the quantity); solve problems involving finding the whole, given a part and the percent.

6.RP.3d [M] Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

## **Mathematical Practices Focus**

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1. Make sense of problems and persevere in solving them. Lesson 6.2,
2. Reason abstractly and quantitatively. Lesson 7.1, 7.2, 8.1, 8.2,
3. Construct viable arguments and critique the reasoning of others. Lesson 6.2, 6.2, 6.3, 7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3
4. Model with mathematics. Lesson 6.1, 6.2, 6.3, 7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.2, 8.3
5. Use appropriate tools strategically. Lesson 6.2, 6.3, 7.1, 7.2, 7.4, 8.1, 8.2, 8.3
6. Attend to precision. Lesson 6.3, 8.2,
7. Look for and make use of structure. Lesson 6.1, 6.2, 6.3, 7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3
8. Look for and express regularity in repeated reasoning. Lesson 7.4, 8.1,