

Understand ratio concepts and use ratio reasoning to solve problems (6.RP.1-3)	
Standard 6.RP.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. The following are examples of ratio language: <i>“The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every two wings there was one beak.” “For every vote candidate A received, candidate C received nearly three votes.”</i>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Understand the concept of a ratio as a way of expressing relationships between quantities. • Distinguish when a ratio is describing part-to-part or part-to-whole comparison. • Communicate ratio relationships flexibly moving between ratio notation (2:3, 2 to 3, 2/3) and ratio language (two for every three). 	
Related Standards: Current Course	Related Standards: Future Courses
6.RP.2 , 6.RP.3 , 6.EE.7 , 6.EE.9	7.RP.1 , 7.RP.2 , 7.RP.3 , 7.G.1 , 8.EE.5 , 8.EE.6 , 8.F.2 , 8.F.3 , 8.F.4 , I.N.Q.1 , I.F.BF.1a , I.F.LE.1 , II.G.C.5 , II.G.GMD.1 , III.G.MG.2 , III.G.MG.3

Support for Teachers

Critical Background Knowledge (Access Background Knowledge)
<ul style="list-style-type: none"> • Convert among different-sized standard measurement units (4.MD.1, 5.MD.1) • Interpret and solve multiplicative comparison problems (4.OA.1, 4.OA.2) • Interpret multiplication as scaling (5.NF.5) • Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms (5.OA.3)
Academic Vocabulary
Ratio, part-to-part, part-to-whole, ratio language: “per”, “for each”, “for every”
Resources
Curriculum Resources : https://www.uen.org/core/core.do?courseNum=5160#70002

Understand ratio concepts and use ratio reasoning to solve problems (6.RP.1-3)	
Standard 6.RP.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. The following are examples of rate language: "This recipe has a ratio of four cups of flour to two cups of sugar, so the rate is two cups of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger." (In sixth grade, unit rates are limited to non-complex fractions.)	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Understand that a rate is a special ratio that compares two quantities with different units of measure. Understand that unit rates are the ratio of two measurements in which the second term is one (e.g., x miles per one hour).* Understand that when using $\frac{a}{b}$ to represent a rate, "b" cannot be 0 (because division by 0 is undefined). Understand rate language (per, each, or the @ symbol) and correctly use ratio notation and models to represent relationships between quantities. <p>*Teacher note: Students are familiar with unit fractions ($\frac{1}{b}$) yet this is their first exposure to unit rates ($a:1$ or $\frac{a}{1}$)</p>	
Related Standards: Current Course	Related Standards: Future Courses
6.RP.1 , 6.RP.3 , 6.EE.7 , 6.EE.9	7.RP.1 , 7.RP.2 , 7.EE.4 , 7.G.1 , 8.EE.5 , 8.EE.6 , 8.F.2 , 8.F.3 , 8.F.4 , I.F.IF.3 , I.F.IF.6 , I.F.BF.1a , I.F.BF.2 , I.F.LE.1 , I.F.LE.2 , II.G.C.5 , II.G.GMD.1 , III.G.MG.2

Support for Teachers

Critical Background Knowledge (Access Background Knowledge)
<ul style="list-style-type: none"> Interpret whole-number quotients of whole numbers (3.OA.2) Interpret and solve multiplicative comparison problems (4.OA.1, 4.OA.2) Interpret a fraction as division of the numerator by the denominator. Solve real-world problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers (5.NF.3) Divide unit fractions by whole numbers and whole numbers by unit fractions (5.NF.7)
Academic Vocabulary
Ratio, rate, unit rate, ratio language: "per", "for each"
Resources
Curriculum Resources : https://www.uen.org/core/core.do?courseNum=5160#70002

Understand ratio concepts and use ratio reasoning to solve problems (6.RP.1-3)	
<p>Standard 6.RP.3: Use ratio and rate reasoning to solve real-world (with a context) and mathematical (void of context) problems, using strategies such as reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations involving unit rate problems.</p> <p>a. 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.</p> <p>b. Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took four hours to mow eight lawns, how many lawns could be mowed in 32 hours? What is the hourly rate at which lawns were being mowed?</i></p> <p>c. Find a percent of a quantity as a rate per 100. Solve problems involving finding the whole, given a part and the percent. <i>(For example, 30% of a quantity means 30/100 times the quantity.)</i></p> <p>d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</p>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Use various representations such as tables of equivalent ratios, tape diagrams and/or double number line diagrams to support the development of ratio and rate reasoning and to solve problems. • Use a table to compare ratios and find missing values using ratios. • Understand that establishing connections between tables and plotted points on the coordinate plane allows for extended reasoning and synthesis of the concept of ratios and rates. • Solve problems with and without context that include unit rate, percent, and measurement conversions using ratio reasoning. • Understand percent as a rate per 100. • Use rate reasoning to find the percent of a number. • Use rate reasoning to solve problems involving finding the whole, given a part and the percent. <p><i>Teacher Note: This standard is not about setting up proportional relationships algebraically, but focuses on ratio reasoning.</i></p>	
Related Standards: Current Course	Related Standards: Future Courses
6.RP.1 , 6.RP.2 , 6.EE.7 , 6.EE.9	7.RP.1 , 7.RP.2 , 7.RP.3 , 7.EE.3 , 7.EE.4 , 7.G.1 , 8.EE.5 , 8.EE.6 , 8.F.2 , I.N.Q.1 , I.A.CED.1 , I.A.REI.3 , I.F.LE.1 , I.F.LE.2 , II.G.C.5 , III.A.REI.2 , III.G.MG.2 , III.G.MG.3

Support for Teachers

Critical Background Knowledge (Access Background Knowledge)
<ul style="list-style-type: none"> • Convert among different-sized standard measurement units (4.MD.1, 5.MD.1) • Interpret and solve multiplicative comparison problems (4.OA.1, 4.OA.2)

- Use decimal notation for fractions with a denominator of 100 ([4.NF.6](#))
- Interpret a fraction as division of the numerator by the denominator ([5.NF.3](#))
- Identify relationships between corresponding terms in tables ([5.OA.3](#)); graph points in the first quadrant of the coordinate plane ([5.G.2](#))

Academic Vocabulary

Ratio, rate, unit rate, percent, ratio language: “per”, “for each”

Resources[Curriculum Resources](https://www.uen.org/core/core.do?courseNum=5160#70002): <https://www.uen.org/core/core.do?courseNum=5160#70002>