

## *Ratios with Cartons and Beans, Counters and Cups, Tables, Tape Diagrams and Double Number Lines*

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<https://www.air.org/project/math-and-english-language-development-english-language-learners-project-meld>



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### **Associated Ratios – Lots of Different Relationships**

There are 3 apples and 4 oranges. How many pieces of fruit? \_\_\_\_

The ratio of apples to oranges is \_\_\_\_ to \_\_\_\_.

The ratio of oranges to apples is \_\_\_\_ to \_\_\_\_.

The ratio of apples to fruit is \_\_\_\_ to \_\_\_\_.

The ratio of oranges to fruit is \_\_\_\_ to \_\_\_\_.

The ratio of fruit to apples is \_\_\_\_ to \_\_\_\_.

The ratio of fruit to oranges is \_\_\_\_ to \_\_\_\_.

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Build in egg cartons and record in tables.

Mr. Nelson says the ratio of boys to girls in his class is 2 to 3.

There are 10 boys in his class.

How many girls are in his class?

boys						
girls						

Meg can run 2 laps in 5 minutes.

How many laps can Meg run in 20 minutes?

laps						
minutes						

Susan makes necklaces and bracelets with black and red beads.

The ratio of black beads to red beads is 5:2.

Necklaces have 35 beads. How many of each color will she use?

black						
red						
total						

The ratio of boys to girls in Ms. Aziz's 3<sup>rd</sup> period class is 3 to 2.

18 students are boys. What is the total number of students in Ms. Aziz's class?

boys						
girls						
total						

## Additional Practice

1. To make trail mix Susan mixes 3 ounces of peanuts with 2 ounces of raisins.  
Susan wants to make multiple batches.  
Build equivalent ratios and make a ratio table to show how many ounces of peanuts and raisins Susan may need.

ounces of peanuts						
ounces of raisins						

2. To make chocolate trail mix Susan mixes 5 ounces of peanuts with 3 ounces of chocolate.  
Susan uses 20 ounces of peanuts.  
How much chocolate does she use?


**Susan uses \_\_\_\_\_ ounces of chocolate.**

3. The principal says that the ratio of girls to boys in the sixth grade is 4 girls to 5 boys.  
You know there are 45 students in sixth grade.  
How many girls are in sixth grade?

girls						
boys						
total students						

**There are \_\_\_\_\_ girls in sixth grade.**

4. To make trail mix Susan mixes 3 ounces of peanuts with 2 ounces of raisins.  
Susan uses 8 ounces of raisins. How many total ounces of trail mix will she have?

ounces of peanuts						
ounces of raisins						

**Susan will have \_\_\_\_\_ ounces of trail mix.**

Use **cups** and **beans** to solve each problem. Record in a tape diagram.  
How is the cups method (tape diagram) like the carton method (ratio table)?  
How are the methods different?

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How many girls are in his class?

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How many laps can Meg run in 20 minutes?

Susan makes necklaces and bracelets with black and red beads.  
The ratio of black beads to red beads is 5:2.  
Necklaces have 35 beads. How many of each color will she use?

Additional Practice Examples (switch to using numerals for 2 & 3):

1. In a class the ratio of boys to girls is 3 to 5.  
There are 6 more girls than boys.  
How many students are in the class?
2. At the end of 8 hours, the manager said the snack shop had sold  
2 hamburgers for every 3 cheeseburgers.  
They sold 84 hamburgers.  
How many more cheeseburgers did they sell than hamburgers?
3. The ratio of boys to girls in Grade 6 is 4 to 3.  
There are 175 students in Grade 6.  
How many of the students in Grade 6 are girls?

Double Number Lines

Try with a “build up” (between relationship) method.	Try with a growing (within relationship) method.
<p>Tickets are priced at 2 for 5 dollars. How much will 10 tickets cost?</p> <p>Tickets</p> <div></div> <p>Dollars</p> <div></div>	<p>Tickets are priced at 2 for 5 dollars. How much will 10 tickets cost?</p> <div></div> <div></div>
<p>In a cake recipe, the ratio of eggs to cups of flour is 4 to 3. How many cups of flour are needed for 15 eggs?</p> <div></div> <div></div>	<p>In a cake recipe, the ratio of eggs to cups of flour is 4 to 3. How many cups of flour are needed for 15 eggs?</p> <div></div> <div></div>
<p>Daleen drove 110 miles in 2 hours. At this rate, how far will she drive in 9 hours?</p> <div></div> <div></div>	<p>Daleen drove 110 miles in 2 hours. At this rate, how far will she drive in 9 hours?</p> <div></div> <div></div>

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