Unit 7 Parent Guide

Lesson 1—Comparing Ratios--Helpful Hints

*In today's lesson, students reviewed ratios and their knowledge of ratios from Unit 1 this year. Students used their knowledge of ratios to then compare ratios in real world situations in order to answer questions such as "which paint has more yellow color base?" "which drink has more cherry-orange flavoring?" etc. Students then used the information from their ratio tables and graphed it to create a visual representation of their data. See below for some important vocabulary and example problems from today's lesson.

Important Vocabulary:

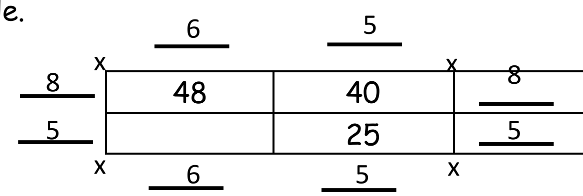
Ratio: two quantities are in the ratio *a* to *b* if for every *a* units of the first quantity there are *b* units of the second quantity.

Ratio Table: a table showing equivalent (equal) ratios

Proportion: an equation stating that two ratios are equal

Factor puzzle: a strategy that students have learned to find equivalent ratios. See the example below If I was trying to find the missing units in a ratio table below I could set up a factor puzzle to help me solve it. Let's say I know that the first ratio is 48:40 and the second is x:25. I need to find out what x equals by using a factor puzzle.

On each line I place a factor that I know the 2 numbers have in common. I work horizontally and vertically to find common factors.



The two numbers surrounding the inside number should be able to be multiplied to create the inside number. So, in this example 5 and 6 can be multiplied to make 30 which is our example.

The final ratio would be 48:40 and 30:25.

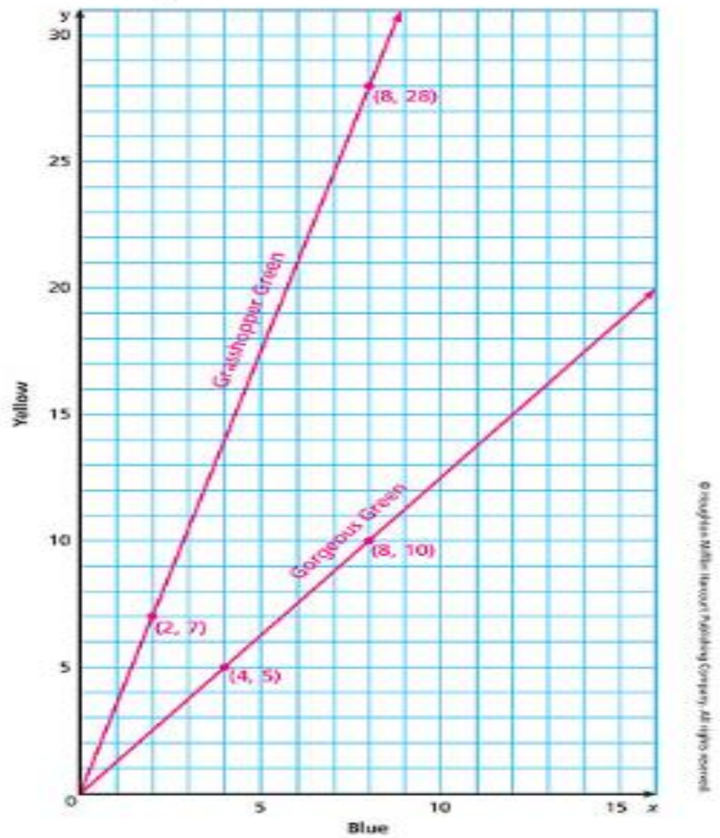
Example 1: On the student's homework for Lesson 1, they will need to complete a ratio table and then graph the information from it in order to answer questions about the ratio amounts. Below is an example that students worked on in class that is very similar to their homework assignment. Compare the ratio tables of two different types of green paint. The ratios describe the amount of blue and yellow paint that is used to make the specific type of green paint.

Gorgeous Green	
Blue	Yellow
4	5
28	35
8	10

Grasshopper Green	
Blue	Yellow
2	7
10	35
8	28

Students will need to use factor puzzles or another strategy to find some missing amounts on their homework assignment. But once the ratio tables are complete, they will be able to answer questions about the objects (in this example, paint) by looking at the equivalent ratios. Then they will use the information from the tables, to make a graph.

9. Graph two points from each table. Draw and label a line for *Grasshopper Green* and a line for *Gorgeous Green*.



Once the graph is created, students can also use this visual aid to help them answer questions about the objects (in this example, paint) For instance, I can tell by this graph that Grasshopper Green has more yellow in it than Gorgeous Green. I can also tell that Gorgeous Green has more blue in it than Grasshopper Green.

*Lesson 2—Unit Rates--Helpful Hints

*Today's learning included a review from Unit 1 of unit rates. Then students extended their knowledge of unit rates by looking at a ratio as a quotient and also learned additional ways to solve ratios using unit rates. See below for some specific examples.

Example 1:

Students learned that when creating ratio that include 1, a factor puzzle may not work. Another strategy must be used. When just trying to solve for the ratio that belongs with one, division is the process that should be used and then the ratio would be shown as the quotient in fraction form.

1. Find the amount of cherry juice in each drink for 1 cup of orange juice. Remember that when you divide both quantities in a ratio table by the same number, you get an equivalent ratio.

Sue's Recipe

Cherry : Orange

Cherry	Orange
5	4
$\frac{5}{4}$	1

÷ 4 ÷ 4

$\frac{5}{4}$ is the quotient of 5 ÷ 4.

Sue has $\frac{5}{4}$ cups of cherry juice for every cup of orange juice.

The unit rate for the ratio 5:4 is $\frac{5}{4}$.

Ben's Recipe

Cherry : Orange

Cherry	Orange
6	5
$\frac{6}{5}$	1

÷ 5 ÷ 5

$\frac{6}{5}$ is the quotient of 6 ÷ 5.

Ben has $\frac{6}{5}$ cups of cherry juice for every cup of orange juice.

The unit rate for the ratio 6:5 is $\frac{6}{5}$.

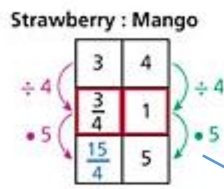
You divide by the number that will equal 1 when divided. In the first example, we divided both sides by 4, because the relationship between 4 and 1 is dividing by 4. In the second example, we divided both sides by 5, because the relationship between 5 and 1 is dividing by 5.

Example 2: After students practiced with writing unit rates as quotients (shown in example 1) they extended their learning by then adding another ratio possibility to the table. See below:

Maria's favorite juice recipe uses 4 cups of mango juice and 3 cups of strawberry juice. How many cups of strawberry juice should she mix with 5 cups of mango juice to make her favorite juice?

Answer: $\frac{15}{4}$ cups

Since the unknown is the number of cups of *strawberry* juice, use the unit rate for the ratio *strawberry*:mango.



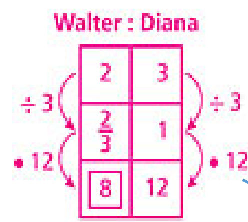
This step is the step that was described in example 1

This step is new!

In order to solve this problem, you must find the ratio that belongs with 1 by dividing by 4 (first step) Then you must decide what the relationship is between the 1 and the 5. In this case it is times 5. So I multiply by 5 on the other side of the table as well to create the problem $\frac{3}{4}$ x $\frac{5}{1}$ which equals $\frac{15}{4}$ or $2\frac{4}{5}$

Example 3: Diana can do 3 sit-ups in the time it takes Walter to do 2. How many sit-ups will Walter have done when Diana has done 12 sit-ups?

Answer: 8 sit-ups



This step is the step that was described in example 1

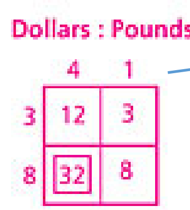
This step is new!

In order to solve this problem, you must find the ratio that belongs with 1 by dividing by 3 (first step) Then you must decide what the relationship is between the 1 and the 12. In this case it is times 12. So I multiply by 12 on the other side of the table as well to create the problem $\frac{2}{3}$ x $\frac{12}{1}$ which equals $\frac{24}{3}$ or 8

Example 4: In some ratio problems the above strategy does not need to be used. Connections can be made or factor puzzles can be drawn in order to complete the ratio table. See below:

Amanda buys 3 pounds of blueberries for $12. At the same price per pound, how much will 8 pounds of blueberries cost?

Answer: $32



These are factors being pulled out of each of the numbers (horizontally and vertically) in order to create factors that can be multiplied to find the missing unit. This is just like using a factor puzzle (described in lesson 1)

*Lesson 3—Ratios, Fractions and Fraction Notation--Helpful Hints

*Today students will continue to work with ratios and proportions. Students will focus mainly on equivalent ratios, proportions and fraction notation. See below for examples of each:

Example 1: Complete the ratio table

Students can complete the table by finding out how the numbers relate to each other, then using that relationship to find the missing number.

so I will divide by 3 here as well

so I will multiply by 3/4 here as well

Cups of Juice

Tangerine	4	$\frac{4}{3}$	1	8	20	$\frac{8}{3}$
Cherry	3	1	$\frac{3}{4}$	6	15	2

the relationship from 3 to 1 is divided by 3

the relationship from 1 to 3/4 is multiply by 3/4

SO...to find 20, I multiply 4 by 5

SO...to find 8/3, I divide 8 by 3

Cups of Juice

Tangerine	4	$\frac{4}{3}$	1	8	20	$\frac{8}{3}$
Cherry	3	1	$\frac{3}{4}$	6	15	2

to get from 3 to 15, you should multiply by 5

to get from 6 to 2, you should divide by 3

Example 2: Solve the following problem using ratios in fraction notation.

> At the farm the ratios of mothers to baby sheep in each field are equivalent. If there are 20 mothers and 24 babies in the small field, how many babies are with the 45 mothers in the large field?

Students should set up the ratios in fraction notation and then use a strategy, such as a factor puzzle, to find the missing value and answer the question.

$\frac{20}{24}$ $\frac{45}{\_\_}$

	4	9	
5 x	20	45	x 5
6 x	24	54	x 6
	4	9	

The answer is 54 because 9 x 6 equals 54. The relationship between the other values helped me complete the factor puzzle

*Lesson 4—Understanding Cross-Multiplication--Helpful Hints

*Today, students used their understanding of factor puzzles and equivalent ratios to learn the strategy of cross-multiplying with two fractions in order to find a missing value or to check for equivalence. Students learned that when you are working with factor puzzles and you multiply the opposite corners, the products will be equal. This is the same concept as cross-multiplying, just with less steps. See examples below:

<u>**Example 1:**</u> $\frac{10}{15} = \frac{18}{q}$ Solve for q using cross multiplication

Step 1-Draw arrows to indicate that you are cross-multiplying

$$\frac{10}{15} = \frac{18}{q}$$

Step 2-Multiply the numerator of one fraction with the denominator of another and set up and equivalent equation.

10 ● q = 15 ● 18

Step 3-Multiply the side that has 2 numbers

10 ● q = 270

Step 4-Isolate the variable (get the variable on a side by itself) by dividing the product you just got by the number left on the other side.

270 ÷ 10 = 27

Step 5- Record your answer and plug is back into the fraction ratio

q = 27 or $\frac{10}{15} = \frac{18}{27}$

<u>**Example 2:**</u> $16:20 = 12:x$ Solve for x by placing the proportion in fraction notation and then using cross multiplication

Step 1- Write the proportion in fraction notation

$$\frac{16}{20} = \frac{12}{x}$$

Step 2-Draw arrows to indicate that you are cross-multiplying

$$\frac{16}{20} = \frac{12}{x}$$

Step 3-Multiply the numerator of one fraction with the denominator of another and set up and equivalent equation.

16 ● x = 20 ● 12

Step 4-Multiply the side that has 2 numbers

16 ● x = 240

Step 5-Isolate the variable (get the variable on a side by itself) by dividing the product you just got by the number left on the other side.

240 ÷ 16 = 15

Step 6- Record your answer and plug is back into the fraction ratio

x = 15 or $\frac{16}{20} = \frac{12}{15}$

Example 3: Solve by placing the proportion in fraction notation and then use cross multiplying. Zander paid $7 for 5 avocados. How much would 9 avocados cost?

Step 1- Write the proportion in fraction notation

$$\frac{7}{5} = \frac{x}{9}$$

Step 2-Draw arrows to indicate that you are cross-multiplying

$$\frac{7}{5} = \frac{x}{9}$$

Step 3-Multiply the numerator of one fraction with the denominator of another and set up and equivalent equation.

5 ● x = 7 ● 9

Step 4-Multiply the side that has 2 numbers

5 ● x = 63

Step 5-Isolate the variable (get the variable on a side by itself) by dividing the product you just got by the number left on the other side.

63 ÷ 5 = $12.60

Step 6- Record your answer and plug is back into the fraction ratio

x = $12.60 or $\frac{7}{5} = \frac{63/5}{9}$

*Lesson 5—Describing Ratios with Tape Diagrams--Helpful Hints

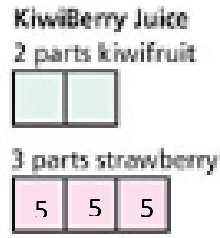
*In today's lesson, students learned how to use tape diagrams as another way to model ratios. Tape diagrams are just another way to show the connection between the unit rates in a ratio and then make connections and answer questions about that ratio using the tape diagram as a visual aid. To answer the ratio questions that students will see in this unit, after today's lesson they will have 3 different strategies for solving them. The 3 strategies are using a factor puzzle, cross-multiplication and now using a tape diagram. Unless it is specifically stated in the directions of a question, students can use whatever strategy works best for them. Two examples using tape diagrams are described below:

Example 1: A juice company's KiwiBerry juice is made by mixing 2 parts kiwifruit juice with 3 parts strawberry juice. The ratio of parts of kiwifruit juice to parts of strawberry juice can be modeled using a tape diagram.

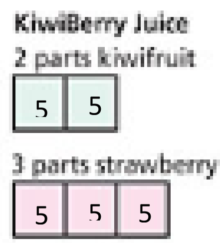
Question 1: How many liters of kiwifrutit juice should be mixed with 15 liters of strawberry juice to make KiwiBerry juice?

Step 1: Students will use the basic ratio tape diagram (above) and make a connection between 3 parts of strawberry juice and 15 parts of strawberry juice. In this example, to get from 3 to 15, I would multiply by 5.

Step 2: Indicate the number of each section in the tape diagram. If I multiply 3 by 5 to get 15, then I would place 5 in each of the 3 tape diagram sections for strawberry juice. See this on the next page.



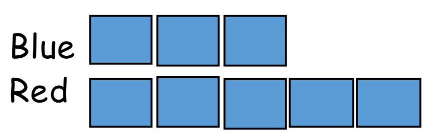
Step 3: To make an equivalent ratio, and answer our question, we would then place a five in each section of the KiwiBerry juice tape diagram.



Step 4: Count up the total amount in the KiwiBerry juice tape diagram sections in order to find your answer. The answer would be 10.

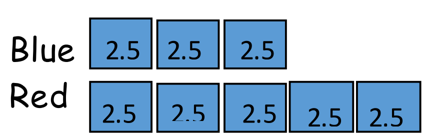
__**Example 2:**__ To make Perfect Purple paint, blue paint and red paint are mixed in a ratio of 3 to 5. How much red paint is needed to make 20 liters of Perfect Purple paint?

Step 1: Students will use the basic ratio tape diagram. 3 to 5



Step 2: Because the question ask for how much red is needed to make 20 liters, students will need to find how much each section of the tape diagram equals. To do this students will need to divide 20 by how many sections are in the tape diagram. So, 20 divided by 8
20 ÷ 8 = 2.5

Step 2: Indicate the number of each section in the tape diagram. If I divide 20 by 8 to get 2.5, then I would place 2.5 in each section of the tape diagram.

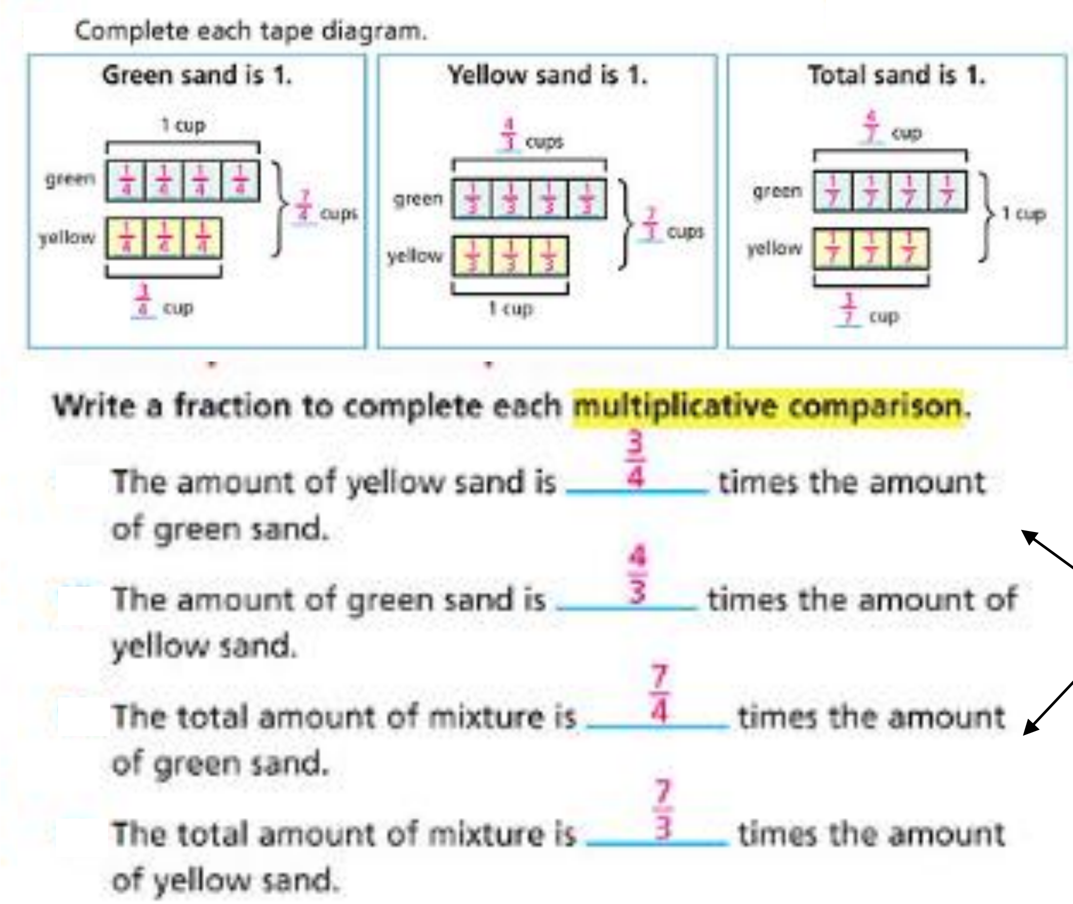


Step 3: To answer our question, we would then add up how many total parts of red paint I would need. So I would add 2.5 + 2.5 + 2.5 + 2.5 + 2.5 or take 2.5 x 5
2.5 + 2.5 + 2.5 + 2.5 + 2.5 or 2.5 x 5 = 12.5 My answer would be 12.5

Reminder for Homework: The instructions ask students to use tape diagrams to help them solve the problems. Try using this strategy for tonight's homework. ☺

*Lesson 6—Ratios and Multiplicative Comparisons--Helpful Hints

*In today's lesson students continued to work with tape diagrams but extended their learning by using multiplicative comparison to form a deeper understanding of the connections that the ratios and situations have. See the example below to help students with any questions they may have on their homework for this lesson.



Notice: These statements are just an extension of the understandings made from the tape diagram. It is just another way to interpret the information the tape diagrams give you.

*Lesson 7—Solve Ratio and Rate Problems--Helpful Hints

*In this lesson students connected their knowledge from the previous 6 lessons and applied it to word problems and real world situations. Most of the problems can be solved using the 3 strategies described in the previous lessons (factor puzzles, cross-multiplication, or tape diagrams) but there are a few that must be solved using other problem solving strategies and analysis. Two examples of these types of problem is shown below.

Example 1: When Gary the snail travels at a steady rate of 15 centimeters per minute, it takes him 6 minutes to get from the pineapple to the rock. How long will it take Gary to get from the pineapple to the rock if he travels at a steady rate of 30 centimeters per minute?

--**THIS IS NOT A PROPORTION PROBLEM!** If students trued to set this problem up as a proportion and solve it using cross-multiplication or a factor puzzle, they would not be able to find a correct solution.

--Instead, students need to use logical reasoning to solve this problem.

--If at a rate of 15 centimeters per minute it takes Gary 6 minutes to travel then at a 30 centimeters per minute it should take him 3 minutes to travel the same distance.

-explanation: 30 is twice as fast as 15, so it should take him $\frac{1}{2}$ as long to travel the same distance.

Example 2: It takes Brittany 2 hours to mow 5 acres of grass. If Austin mows grass at the same rate as Brittany, how long will it take the two of them working together to mow 15 acres of grass?

--**THIS IS NOT A PROPORTION PROBLEM!** If students trued to set this problem up as a proportion and solve it using cross-multiplication or a factor puzzle, they would not be able to find a correct solution.

--Instead, students need to use logical reasoning to solve this problem.

--If Brittany mows 5 acres in 2 hours and Austin mows grass at the same rate, it will take them 3 hours to mow 15 acres.

-explanation: If Brittany and Austin are both mowing together, they will mow twice as much in the same amount of time. So, together, they mow 10 acres every 2 hours, or 5 acres every 1 hour. So they will be able to mow 15 acres in 3 hours.

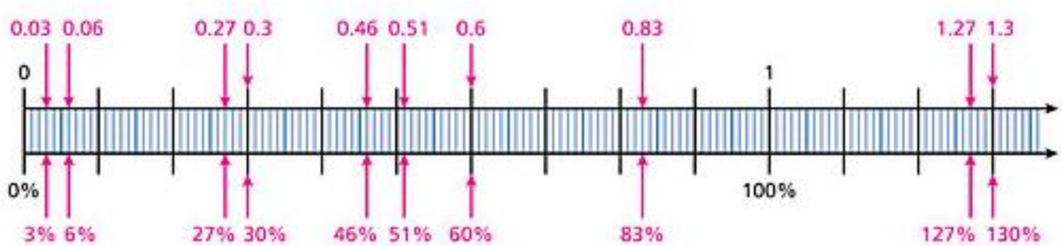
****Homework Hint:** On tonight's homework, problem number 3 is not a proportion problem. It cannot be solved with a cross-multiplication, a tap diagram or a factor puzzle. Use logical reasoning to help answer this question.

*Lesson 8—The Meaning of Percent--Helpful Hints

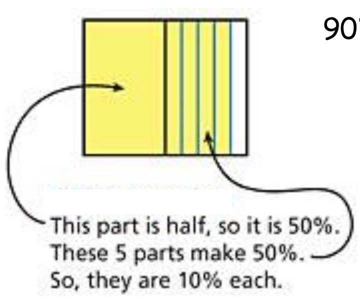
*In this lesson students learned about what a percent is and the connection that percents have to decimals and fractions. Students will identify decimals, fractions and percents on a number line in today's lesson and also determine the percent shaded on a figure using different strategies. See below for an example of each.

Example 1: Complete the table. Then place the decimals and percents on the number line.

Percent	83%	51%	46%	6%	60%	27%	127%	3%	30%	130%
Fraction	$\frac{83}{100}$	$\frac{51}{100}$	$\frac{46}{100}$	$\frac{6}{100}$	$\frac{60}{100}$	$\frac{27}{100}$	$\frac{127}{100}$	$\frac{3}{100}$	$\frac{30}{100}$	$\frac{130}{100}$
Decimal	0.83	0.51	0.46	0.06	0.6	0.27	1.27	0.03	0.3	1.3

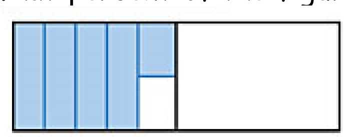


Example 2: What percent of the figure is shaded?



90% is shaded

Example 3: What percent of the figure is shaded?



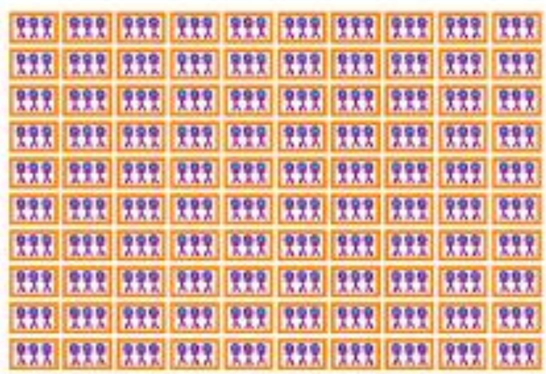
45% is shaded. I know this because the line in the middle of the shape shows the half mark, so the left side equals 50% or half. The left side is broken into 5 pieces, so they are each worth 10%. There are 4 10% pieces to make 40% and then the last piece is only half of 10 or 5%. 40 + 5 = 45%

*Lesson 9—Percent of a Number--Helpful Hints

*Today's lesson was all about percents and how to find the percent of a number. Students learned different methods for finding the percent of a number and applied it to what they know about ratios. They also learned about percent through visual aids such as the one you will see below in the example. A big key word that students reviewed today was **OF**. Remembering that **OF** means to multiply will help students when finding the percent of a number.

Example 1: Of the 300 students shown below, 35% say they are going on a field trip. How many students are going on the field trip? Multiple options for solving this problem are shown.

The 300 students at a school are in 100 groups of 3.



Option 1:
Students could use the visual aid and count 35 sections and then multiply it be 3 (the amount of students in each section)
They would take
35 x 3 = 105

This strategy can be helpful for students when they are first learning a skill, but is not a realistic strategy for very long as it could take students a very long time to create a visual aid on their own.

Option 2:
Students could divide 300 by 100 to find 1% of 300 then take that answer (3) and multiply it by 35 to find 35% of 300.

1% of 300 =
300 ÷ 100 = 3, so
35% of 300 =
35 x 3 = 105

This strategy could be very helpful when students are first understanding percents but the steps could be condensed once students understand percents better. The first step is not actually needed to solve correctly

Option 3:
Students could use the fact that 35% of 300 means to take $\frac{35}{100}$ times 300.

35% of 300 =

$\frac{35}{\cancel{100}_{1}} \times \cancel{300}^{3} =$

35 x 3 = 105

This strategy is the most efficient in regards to time and number of steps. Remembering that OF means to times and that a percent is always out of 100 is all the student would need in order to complete this strategy.

Option 4:
Students could solve the problem using a proportion using cross multiplication or a factor puzzle.

$\frac{35}{100} = \frac{f}{300}$

$\frac{\cancel{100} f}{\cancel{100}} = \frac{10500}{100}$

10500 ÷ 100 =
f = 105

This strategy is helpful for students that understand and like to cross-multiply or solve problems as proportions.

<u>*Lesson 10—Percent Calculations--Helpful Hints</u>

*In today's lesson, students will see more methods for calculating percents of numbers. Then they will apply those methods to solve other types of percent problems. Students will also find percents of numbers less than 100 and of numbers that are not multiples of 100. See examples below:

Example 1: What is 40% of 70?

Step 1: Set the problem up as an equation.

REMEMBER:

*OF means multiply

*IS means equal

*WHAT should be your variable

*it will be easier to change the percent to a decimal. Remember that all percents are out of 100

What is 40% of 70

x = .40 • 70

Step 2: Solve the equation you just set up and solve for x

x = .40 • 70

x = 28.00

Example 2: 40% of what number is 70?

Step 1: Set the problem up as an equation.

REMEMBER:

*OF means multiply

*IS means equal

*WHAT should be your variable

*it will be easier to change the percent to a decimal. Remember that all percents are out of 100

40% of what number is 70

.40 • x = 70

Step 2: Solve the equation you just set up and solve for x

.40 • x = 70

To solve for x I will have to do the opposite of multiply and DIVIDE 70 ÷ .40

```
.40⟌70
     0175
40⟌7000
   -40
    300
   -280
     200
    -200
       0
```

The answer would be 175

40% of 175 equals 70

*Lesson 11—Solve Percent Problems--Helpful Hints

*Students will continue to practice solving percent problems today. It is important to encourage your student to use the clue words to help them set up an equation before solving a percent problem.

REMEMBER:

*OF means multiply

*IS means equal

*WHAT should be your variable

*it will be easier to change the percent to a decimal before multiplying. Remember that all percents are out of 100. Example: 40% = .40 7% = .07 14% = .14

Some of the problems that students will encounter today will cause them to dig deeper and prove their understandings of percents. Some will need to be set up as proportion problems in order to solve. Encourage them to use the key words to help!

Example 1: A company spent $4,500 of its $18,000 advertising budget on Internet ads. What percent of its advertising budget did the company spend on Internet ads?

This problem can be set up as a proportion problem.

$\frac{x}{100} = \frac{4500}{18000}$ students could use cross multiplication and then division to solve for x.

$\frac{x}{100} = \frac{4500}{18000}$ 100•4500 = 18000•x

450000 = 18000x

$\frac{450000}{18000} = \frac{18000x}{18000}$

450000 ÷ 18000 = 25

x = 25%

*Lesson 12—Convert Units of Length --Helpful Hints

*Today students will be using their knowledge of fractions and proportions to help them convert between different units of length. This is a review skill from 5th grade but students will be diving deeper by relating the connections between two units of length using fractions. Some reminders and examples are provided below.

Metric System Conversion Reminders:

Every time you move to the right, you will **multiply** by 10. Example: Moving from deci- to milli- would be moving two spaces so you would multiply by 100 (10^2) Moving from kilo- to the base unit (meter) you would be moving 3 spaces so you would divide by 1,000 (10^3)

→

Kilo- Hecto- Deca- BASE UNIT Deci- Centi- Milli-

←

Every time you move to the left, you will **divide** by 10. Example: Moving from milli- to centi- would be moving one space so you would divide by 10. Moving from milli- to deca- you would be moving 4 spaces so you would divide by 10,000 (10^4)

**Metric conversions can also be thought as a movement of the decimal. If you are multiplying you would move the decimal to the right the same amount of spaces causing the number to get bigger. If you are dividing you would move the decimal to the left the same amount of spaces causing the number to get smaller.

For example, if you had 4.5 millimeters and you wanted to know how many decameters that is equal to you would first count the spaces. There are four spaces between milli- and deca- on the chart and you have to move to the LEFT to get from milli- to deca- so you would just move the decimal 4 places to the LEFT to get your answer.

4.5 so 4.5 millimeters would be equivalent to .00045 decameters.

If you had 6 hectometers and you wanted to know how many decimeters that is equal to you would first count the spaces. There are 3 spaces between hecto- and deci- on the chart and you have to move to the RIGHT to get from hector- to deci- so you would just move the decimal 3 places to the RIGHT to get your answer.

6. (whole numbers always have an invisible decimal point at the end of the number)

6. so 6 hectometers would be equivalent to 6000 decimeters.

Customary System Conversion Reminders (for length):

1 mile= 5,280 feet
1 yard = 3 feet
1 yard = 36 inches
1 feet = 12 inches

*Another portion of the learning in this lesson has to do with connecting conversions to fractions. Students will learn today that you can relate one unit of length to another in two different ways.

Example 1: What two unit rates relate centimeters (cm) and meters (m)?

Answer: $100\frac{cm}{m}$ and $\frac{1}{100}\frac{m}{cm}$

Explanation: Teaching the students two ways to relate two units of length helps them to see that when you convert from m to cm you will multiply by 100 and when you convert from cm to m you will divide by 100. It is just another way to show the connections that there are when you convert between units.

Example 2: What two unit rates relate feet (ft) and yards (yd)?

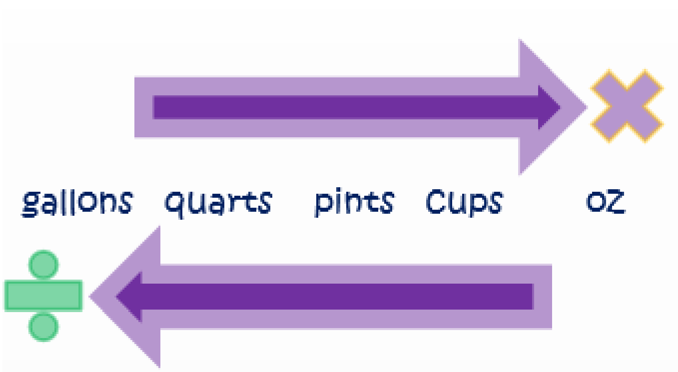
Answer: $3\frac{ft}{yd}$ and $\frac{1}{3}\frac{yd}{ft}$

Explanation: Teaching the students two ways to relate two units of length helps them to see that when you convert from ft to yd you will divide by 3 (or multiply by $\frac{1}{3}$) and when you convert from yd to ft you will multiply by 3. It is just another way to show the connections that there are when you convert between units.

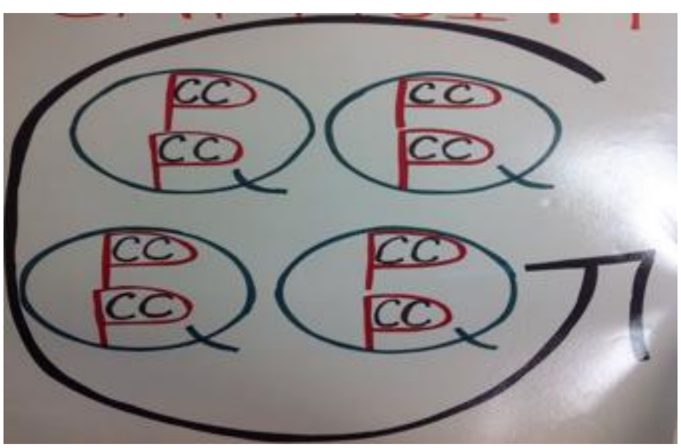
*Lesson 13—Convert Units of Liquid Volume, Mass and Weight--Helpful Hints

*Today's lesson will be very similar to yesterday's lesson, however the focus today will be on liquid volume, mass and weight. The metric conversions all use the same system as described in the Lesson 12 helpful hints section. The only difference is the name of the base unit will change depending on what you are measuring (gram will be used when measuring weight, liter will be used when measuring, meter will be used when measuring length) For any metric system problems, please refer to the hints and reminders provided in the Lesson 12 section of this parent guide.

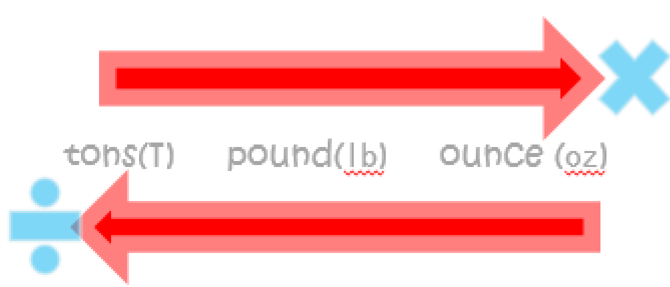
Customary System Conversion Reminders (for liquid volume and weight):



This tool helps students know whether to multiply or divide when they are converting. Students should place their finger on the unit that they have a number for, then move their finger to the unit they are trying to find. Whichever sign they move towards, that is the operation they complete.
For example: If they need to find out how many cups are in 16 gallons. They place their finger on gallons because that is what they have a number for. Then they move towards cups because that is what they need a number for. They will be moving towards the multiplication sign, so



This tool is called the Big G. Many students will be familiar with it from previous years. This tool helps you know what to multiply or divide by when working with liquid measurement. If you look at the picture you will see that there are 4 Q's inside the G, that is because there are 4 quarts in a gallon and if I was converting between quarts and gallons I would multiply or divide by 4. The picture also shows that there are 2 C's inside every P. That is because there are 2 cups in every pint. So if I was converting between cups and pints I would multiply or divide by 2. This tool can be used to find all basic liquid conversion amounts.



16 ounces = 1 pound

2,000 pounds = 1 ton