

**Unit 2: Rate, Ratio and Proportional Reasoning  
Standards, Checklist and Concept Map**

**Georgia Standards of Excellence (GSE):**

**MGSE6.RP.1:** Understand the concept of a ratio and use ratio language to describe a ratio 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 3 votes."*

**MGSE6.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. *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."*

**MGSE6.RP.3b:** Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, at that rate, how many lawns could be mowed in 35 hours?*

**MGSE6.RP.3:** Use ratio and rate reasoning to solve real-world mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

**MGSE6.RP.3a:** Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

**MGSE6.RP.3c:** Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means  $30/100$  times the quantity); solve problems involving finding the whole, given a part and the percent.

**MGSE6.RP.3d:** Use ratio and rate reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.



**What Will I Need to Learn??**

- \_\_\_\_\_ I can understand ratios
- \_\_\_\_\_ I can understand unit rates
- \_\_\_\_\_ I can solve unit rate problems
- \_\_\_\_\_ I can make tables of equivalent ratios, find missing values, and plot points in a coordinate plane; compare ratios in a table
- \_\_\_\_\_ I can solve problems with tables, tape or number line diagrams, or equations
- \_\_\_\_\_ I can find percent of a number
- \_\_\_\_\_ I can find the whole when given part and %
- \_\_\_\_\_ I can convert Metric units
- \_\_\_\_\_ I can convert Customary units



**Unit 2 Circle Map:** On the left page, make a Circle Map of important vocab and topics from the standards listed above.

**Unit 2 - Vocabulary**

Term	Definition
Customary System	The primary system of measurement used in the US, which uses a variety of conversions
Double Number Line Diagram	A visual model used to solve unit rate problems and proportions
Metric System	The system of measurement that uses a base-10 model; used by most countries
Percent	Number out of 100
Proportion	An equation of equivalent ratios
Rate	A ratio that compares quantities measured in different units
Ratio	A comparison of two numbers
Unit Rate	A comparison of two measurements in which one of the terms has a value of 1

**Unit 2 – Vocabulary – You Try**

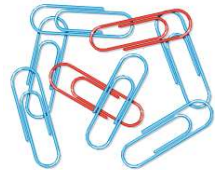
Term	Definition	Illustration or Example
Customary System		
Double Number Line Diagram		
Metric System		
Percent		
Proportion		
Rate		
Ratio		
Unit Rate		

# Ratios

A \_\_\_\_\_ is a comparison of two quantities by division.

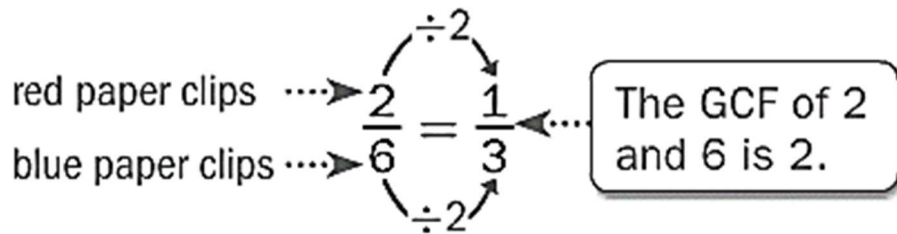
The ratio of two red paper clips to six blue paperclips can be written in the following ways:

**2 to 6**      **2:6**       $\frac{2}{6}$



Just like fractions, we usually represent a ratio in simplest form.

## ORDER MATTERS!



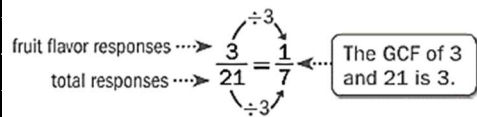
### Example:

Several students named their favorite flavor of gum. Write the ratio that compares the number of students who chose fruit to the total number of students.

Favorite Flavors of Gum	
Flavor	# of Responses
Peppermint	9
Cinnamon	8
Fruit	3
Spearmint	1

Fruit: 3

Total: 9 + 8 + 3 + 1, or 21



The ratio is  $\frac{1}{7}$ , 1 to 7, or 1:7.

So, 1 out of every 7 students preferred fruit-flavored gum.

### You Try:

Use the stars to answer questions 1 and 2.



1) Write the ratio of black stars to white stars in three different ways.

\_\_\_\_\_

2) Write the ratio of white stars to black stars in three different ways.

\_\_\_\_\_

Use the table below to answer questions 3-6.

Favorite Pets	
Snake	15
Dog	10
Cat	6
Hamster	8
Fish	1



- What is the ratio of people who chose **snakes** as their favorite pet to those who chose **dogs**?
- What is the ratio of people who chose **cats AND dogs** to those who chose **hamsters**?
- What is the ratio of those who chose **snakes** as their favorite pet to **everyone** that was surveyed?
- What is the ratio of those who chose **cats** to those who chose **fish**?

Use the words, "**East Cobb Middle School**" to answer questions 7-11.

- 7) What is the ratio of vowels to consonants?
- 8) What is the ratio of letters in ECMS to East Cobb Middle School?
- 9) What is the ratio of the letters in "East Cobb" to the letters in "Middle School"?
- 10) What is the ratio of the letters in "Middle School" to the letters in "East Cobb"?
- 11) Crain says the ratio of letters in "East" to "Cobb" is 4:4. Hailey says that ratio is 1:1. Who is correct? Explain your answer.

The table below shows the number of balloons purchased in each color at Party City. Using this information, answer questions 12-15.

Color	Red	Yellow	Blue	Green
Quantity Sold	10	20	15	25

- 12) Which two items does the ratio 10:20 represent?
- 13) Which two items does the ratio 3:5 represent?
- 14) Which two items does the ratio 5 to 3 represent?
- 15) Which two items does the ratio  $\frac{3}{2}$  represent?
- 16) Which two items does the ratio 4:3 represent?

## Different Types of Ratios

**Part to \_\_\_\_\_** ratios are ratios that relate one part of a whole to another part of a whole.

**Example:**

There are 4 boys for every 6 girls. The ratio of boys (a part of the group of kids) to girls (another part of the group of kids) is 4:6 (*simplified to 2:3*).

**You Try:**



The ratio of boys to girls is: \_\_\_\_\_ to \_\_\_\_\_

The ratio of girls to boys is: \_\_\_\_\_ : \_\_\_\_\_

**Part to \_\_\_\_\_** ratios are ratios that relate one part of the whole to the whole.

**Example:**

There are 4 boys (a part of the group of children) for every 10 children (the whole group of children), written as 4:10 (*simplified to 2:5*). On the other hand, 6 girls for every 10 children is written as 6:10 (*simplified to 3:5*).

**You Try:**



The ratio of boys to children is: \_\_\_\_\_ to \_\_\_\_\_

The ratio of girls to children is: \_\_\_\_\_ : \_\_\_\_\_