

2017-2018

Grade 4 Go Math! Quarter 3 Planner  
Chapter 7 Add and Subtract Fractions

13-14 Days

**BIG IDEA:** The Standard begins with an understanding that addition and subtraction of fractions has the same meaning as addition and subtraction of whole numbers, although the process of addition and subtraction is different with fractions. Addition and subtraction work is limited to examples with like denominators. The concept of unit fractions is foundational as students prepare to add and subtract fractions.

Students must be able to decompose a fraction into unit fractions ( $4/5 = 1/5 + 1/5 + 1/5 + 1/5$ ) and compose fractions from the sum of unit fractions, avoiding misconceptions (such as adding denominators) by giving students multiple opportunities with various **concrete models, pictures, and the number line** and making explicit connections to written equations.

Adapted from The Common Core Companion, p. 132-134

**Professional Development Videos:**

Fraction Operations: Grades 3-6

[Addition and Subtraction of Fractions using a Fraction Kit](#);

[Addition and Subtraction of Fractions using a Set Model](#)

[Solve Problems with Fractions](#)

**Quarter 3 Fluency Resources:**

[Fluency Resources in Go Math](#)

[Building Fluency Through Word Problems](#)

[Building Fluency Through Number Talks](#)

**Critical Area Projects:**

[Building Custom Guitars](#)

[Fundraiser](#)

**Essential Question:** How do you add or subtract fractions that have the same denominator?

**Standards:** 4.NF.3a, 4.NF.3b, 4.NF.3c, 4.NF.3d

**ELD Standards:**

ELD.PI.4.1-Exchanging information/ideas via oral communication and conversations.

ELD.PI.4.3-Offering opinions and negotiating with/persuading others.

ELD.PI.4.5-Listening actively and asking/answering questions about what was heard.

ELD.PI.4.9- Expressing information and ideas in oral presentations.

ELD.PI.4.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.

ELD.PI.4.12-Selecting and applying varied and precise vocabulary.

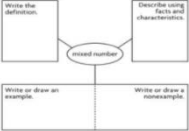

**START OF THIRD QUARTER**

**\*Note** that the Standards do not require students to simplify fractions although students may find fractions written in simpler form easier to understand. (i.e.  $50/100 = \frac{1}{2}$ ). Having students find equivalent fractions "in both directions" may help students to realize that fractions can be written in simpler form without formally simplifying fractions.

Lesson	Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools <a href="#">Go Math! Teacher Resources G4</a>	Connections (ENGAGE prior knowledge)	Vocabulary	Academic Language Support	Journal	
7.6	Rename Fractions and Mixed Numbers	<a href="#">4.NF.3b</a> <a href="#">MP 1</a> <a href="#">MP 4</a>  Companion pg. 134	How can you rename mixed numbers as fractions greater than 1 and rename fractions greater	In this lesson, students write fractions greater than 1 as mixed numbers and write mixed numbers as fractions greater than 1. Students will rename fractions greater than 1 when they add fractions and mixed numbers.	<a href="#">Fraction Strips</a>  <a href="#">Mixed Fraction Number Line</a>  <a href="#">Pattern Blocks</a>	Explain how to write $1\frac{1}{4}$ as a sum of unit fractions. Have students use a number line and fraction strips to write $9/4$ as a mixed number. How could students write $8/5$ as a mixed number without using a model? ( $5/5 = 1$ , so $5/5 + 3/5 = 1 + 3/5$ )	Renaming fractions, mixed number, fractions greater than 1	<b>ELD Standards</b> <a href="#">ELD Standards</a> <a href="#">ELA/ELD Framework</a> <a href="#">ELPD Framework</a>	Draw and explain how you can use a number line to rename a fraction greater than 1 as a mixed number. If Julie needs $6\frac{1}{4}$ cups of oatmeal, how many $\frac{1}{4}$ cups of oatmeal will she use?

DRAFT

			than 1 as mixed numbers?	They will rename mixed numbers as fractions greater than 1 when they subtract mixed numbers with renaming.		4 <sup>th</sup> graders are to use representations of 1 whole ( $\frac{4}{4}$ , $\frac{5}{5}$ , $\frac{3}{3}$ , etc.) in renaming, NOT the division algorithm. ( $\frac{7}{3} = \frac{3}{3} + \frac{3}{3} + \frac{1}{3}$ )		<a href="#">ELL Math Instruction Framework Integrating the ELD standards into Math</a>	
7.7	Add and Subtract Mixed Numbers	<a href="#">4.NF.3c</a> <a href="#">MP 2</a> <a href="#">MP 4</a> <a href="#">MP 8</a>  Companion pg. 135	How can you add and subtract mixed numbers with like denominators?	Students will add and subtract mixed numbers in real world situations. For example: How might mixed numbers be used when you follow a recipe? How might mixed numbers be used when you go on a trip? How might mixed numbers be used when you weigh an object?	Fraction Models Vertical Computation of Mixed Numbers  <a href="#">Pattern Blocks</a>	When students use models to add mixed numbers, have students shade the fractional parts first without any gaps. Adding $1\frac{4}{6} + 2\frac{3}{6}$ will fill up $\frac{6}{6}$ parts of circle with $\frac{1}{6}$ in the next circle. Then add the whole numbers of $1 + 2$ for the grand total of $4\frac{1}{6}$ parts. When subtracting $3\frac{4}{6} - 2\frac{3}{6}$ , shade the first mixed number, and then cross out the second number.	Renaming fractions, mixed number, fractions greater than 1	<b>Access Strategies</b> <a href="#">Organizing Learning for Student Access to Challenging Content Student Engagement Strategies Problem Solving Steps and Approaches</a>  <b>Equitable Talk</b> <a href="#">Accountable Talk Simply Stated Equitable Talk Conversation Prompts Accountable Talk Posters Five Talk Moves Bookmark Effective Math Talks</a>  <b>Cooperative Learning</b> <a href="#">Cooperative Learning Role Cards Collaborative Learning</a>	James wants to send two gifts by mail. One package weighs $2\frac{3}{4}$ pounds. The other package weighs $1\frac{3}{4}$ pounds. What is the total weight of the packages?
7.8	Subtraction with Renaming	<a href="#">4.NF.3c</a> <a href="#">MP 3</a> <a href="#">MP 4</a>  Companion pg. 135	How can you rename a mixed number to help you subtract?	Students will rename mixed numbers to subtract. Make connections to subtracting whole numbers and the need at times, for renaming (regrouping).	<a href="#">Mixed Fraction Number Line</a> , Renaming (Regrouping) of Mixed Numbers  <a href="#">Pattern Blocks</a>  <a href="#">Renaming with Pattern Blocks</a>	Review place value subtraction $34 - 16$ and the renaming of $34 = 20 + 14$ in order to subtract $10 + 6$ . That applies to $5\frac{3}{8} - 2\frac{7}{8}$ by renaming $5\frac{3}{8} = 4 + \frac{8}{8} + \frac{3}{8} = 4 + \frac{11}{8} - 2\frac{7}{8}$ , as taught in lessons 7.6, 7.7.  Use pattern blocks to show $3\frac{2}{3}$ in different ways:	Renaming fractions		
7.9	Algebra • Fractions and Properties of Addition	<a href="#">4.NF.3c</a> <a href="#">MP 2</a> <a href="#">MP 7</a>  Companion pg. 135	How can you add fractions with like denominators using the properties of addition?	Students will use the properties of addition to add fractions that have a sum of 1, first. Then students can use mental math to add some fractions.	Commutative and Associative Properties of Addition	Review how the properties help with adding $25 + 86 + 75$ . How can students mentally add $1\frac{3}{4} + 2\frac{3}{4} + 1\frac{1}{4}$ using the properties?	Associative Property of Addition, Commutative Property of Addition	<a href="#">Table Mats Seating Chart Suggestions</a>  <b>Model and Talk</b> Write fractions greater than 1 as a sum of representations of 1 whole, unit fractions.	A carpenter cut a board into 3 pieces. One piece was $2\frac{5}{6}$ feet long. The second piece was $3\frac{1}{6}$ feet long. The third piece was $1\frac{5}{6}$ feet long. How long was the board?
7.10	Problem Solving • Multistep	<a href="#">4.NF.3d</a> <a href="#">MP 1</a> <a href="#">MP 7</a>	How can you use the strategy <i>act it out</i> to solve multistep	Students will use the strategy <i>act it out</i> to solve multistep fraction problems. The problems in this lesson involve repeated addition, which	Fraction Models to <i>Act It Out</i>	The act-it-out strategy involves the use of models to solve more complicated real-world problems. How many $\frac{2}{5}$ parts are in in 2	Repackage, Leftovers, Regroup		

	Fraction Problems	Companion pg. 135	problems with fractions?	students can act out using various types of models, such as fraction strips or fraction circles.	(Fraction Circles, <a href="#">Fraction Strips</a> , Number Lines)	wholes? Represent the answer in 2-3 different ways.		<p>How many?/? parts are in 2 wholes? 3 wholes? Represent the answer in 2-3 different ways.</p> <p><b>Vocabulary Builder</b></p> <p><small>Materials: Word Description (see eTeacher Resource)</small></p> <p>Have students fill out the graphic organizer for the term <i>mixed number</i>. Invite students to share their nonexamples for mixed numbers with the class.</p>  <p><b>Grab &amp; Go!</b> Differentiated Centers Kit <b>Activities</b> <i>Fantastic Fractions</i></p>  <p>Students complete orange Activity Card 8 by drawing pictures of fractions greater than 1.</p>	
--	-------------------	-------------------	--------------------------	--	--	---	--	---	--

**Assessments:**

[Go Math Chapter 7 Test](#)

**\*\*Common Assignment (Option 1, 3<sup>rd</sup> Quarter)-** Go Math Chapter 7 Performance Task: [Lending a Hand](#)

2017-2018

**Grade 4 Go Math! Quarter 3 Planner**  
**Chapter 8 Multiply Fractions by Whole Numbers**

8-9 days

**BIG IDEA:** Multiplication of two whole numbers,  $A \times B$ , ( $3 \times 6$ ), can be defined as the total in  $A$  groups of  $B$ , ( $3$  groups of  $6$ ). This same definition can be applied to multiplying a whole number and a fraction. The whole number represents the number of groups and the fraction represents the number of items in each group. For example,  $4 \times \frac{1}{3}$  can be represented by 4 one-third fraction strips, or  $\frac{4}{3}$ . Students need a well-developed sense of the meaning of multiplication with fractions by a whole number using a variety of representations (area models with number line and set models using counters) and emphasizing real-world situations to model specific problem types.

The standard builds on experiences with decomposing fractions into unit fractions and connecting that understanding to multiplication. Some students may find a pattern and a more efficient algorithm for multiplying a whole number times a fraction (that is, multiply the whole number times the numerator of the fraction) but it is not an expectation for all students. The critical focus of this standard is to develop an understanding of what is happening when multiplying a whole number times a unit fraction by relating the process to the meaning of multiplication, then extending that understanding to multiplying a whole number times any fraction first with visual models and then connecting those models to numerical representations.

Adapted from Go Math, Teaching for Depth, p. 327C; The Common Core Companion p. 137

**Professional Development Videos:** Fraction Operations: Grades 3 – 6  
[Multiply Fractions Using Models](#)

**Essential Question:** How do you multiply fractions by whole numbers?

**Standards:** 4.NF.4a, 4c.NF.4b, 4.NF.4

**ELD Standards:**

ELD.PI.4.1-Exchanging information/ideas via oral communication and conversations.

ELD.PI.4.3-Offering opinions and negotiating with/persuading others.

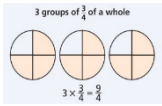
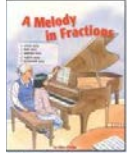

ELD.PI.4.5-Listening actively and asking/answering questions about what was heard.


ELD.PI.4.9- Expressing information and ideas in oral presentations.

ELD.PI.4.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.

ELD.PI.4.12-Selecting and applying varied and precise vocabulary.

Lesson		Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools <a href="#">Go Math! Teacher Resources G4</a>	Connections (ENGAGE prior knowledge)	Vocabulary	Academic Language Support	Journal
8.1	Multiples of Unit Fractions	<a href="#">4.NF.4a</a> <a href="#">MP 2</a> <a href="#">MP 5</a>  Companion pg. 137	How can you write a fraction as a product of a whole number and a unit fraction?	Students will write a fraction as a product of a whole number and a unit fraction. Students also make the connection between multiples of whole numbers and multiples of unit fractions.	<a href="#">Fraction Strips</a>  <a href="#">Mixed Fraction Number Line</a>  <a href="#">Pattern Blocks</a>	Have students connect the relationship between whole-number multiplication and repeated addition with fraction multiplication and repeated addition. If $4 + 4 + 4 = 3 \times 4$ , what does $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ mean? If the multiples of 4 are $1 \times 4$ , $2 \times 4$ , $3 \times 4$ , what are the multiples of $\frac{1}{6}$ ? $3 \times 4 = 4 + 4 + 4$ $3 \times \frac{1}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$	fraction, multiple, product, unit fraction	<b>Math Talk</b> How is multiplying a fraction by a whole number like multiplying a whole number by a whole number?  Scaffold language to help students	Explain how to write $\frac{5}{6}$ as a product of a whole number and a unit fraction. So far, Monica has read $\frac{5}{6}$ of a book. She has read the same number of pages each day for 5 days. What fraction of the book does Monica read each day?
8.2	Multiples of Fractions	<a href="#">4.NF.4b</a> <a href="#">MP 1</a> <a href="#">MP 2</a> <a href="#">MP 4</a>	How can you write a product of a whole number and a fraction as a product of a whole	Students will write a product of a whole number and a fraction as a product of whole number and a unit fraction. The expression $4 \times \frac{2}{3}$ becomes $4 \times 2 \times \frac{1}{3}$ , or $8 \times \frac{1}{3}$ .	<a href="#">Fraction Strips</a>  <a href="#">Mixed Fraction Number Line</a>	Have students use their understanding of multiples to find the multiple of 3 and of $\frac{3}{4}$ and write it as the product of a whole number and a unit fraction: (i.e.) $\frac{3}{4}$ , $\frac{6}{4}$ , and $\frac{9}{4} = 9 \times \frac{1}{4}$	fraction, multiple, product, unit fraction	understand how to use a number line to write multiples of $\frac{2}{3}$ . Repeat, expand, and explain phrases such as	Explain how to write $2 \times \frac{4}{5}$ as the product of a whole number and a unit fraction. Eloise made a list of some multiples of $\frac{8}{5}$ . Write 5

		Companion pg. 139	number and a unit fraction?		<a href="#">Pattern Blocks</a>	$3 \times \frac{1}{4} = \frac{3}{4}$ $2 \times \frac{1}{3} = \frac{2}{3}$ $? \times ? = \frac{4}{5}$		<i>move along</i> and <i>count on</i> .	fractions that could be on Eloise's list.
8.3	Multiply a Fraction by a Whole Number Using Models	<a href="#">4.NF.4b</a> <a href="#">MP 1</a> <a href="#">MP 2</a> <a href="#">MP 4</a> Companion pg. 137	How can you use a model to multiply a fraction by a whole number?	Students will use a model to multiply a fraction by a whole number, eventually transferring to multiplying the whole number by the numerator of the fraction and use the same denominator.	<a href="#">Fraction Strips</a> <a href="#">Mixed Fraction Number Line</a> <a href="#">Pattern Blocks</a>	Draw a model that can be used to represent fifths. Suppose you spend $\frac{4}{5}$ of an hour walking your dog every day. Shade the model to show this fraction of an hour. How many hours would you spend walking your dog in 2 days? 3 days?	 fraction, multiple, product, unit fraction	Have student pairs demonstrate to a partner to answer the Essential Question: How can you write a product of a whole number and a fraction as a product of a whole number and a unit fraction?	Explain how you can use a model to find $4 \times \frac{3}{8}$ . Include a drawing and a solution. Matthew walks $\frac{3}{8}$ mile to the bus stop each morning. How far will he walk in 4 days?
8.4	Multiply a Fraction or Mixed Number by a Whole Number	<a href="#">4.NF.4c</a> <a href="#">MP 1</a> <a href="#">MP 4</a> Companion pg. 140	How can you multiply a fraction by a whole number to solve a problem?	Students will multiply a fraction (mixed number) by a whole number to solve a problem. $5 \times 2\frac{2}{3}$ becomes $5 \times \frac{8}{3}$ . Students rename the product $\frac{40}{3}$ by dividing ( $40 \div 3$ ). When multiplying a fraction product by a whole number, students reason that if the fraction is less than 1, the product is less than the whole – number factor. If the fraction is greater than 1, the product is greater than the whole-number factor. (0 and 1 are exceptions. Use the area model.	Identity Property of Multiplication, Renaming fractions	<p>Have students look around the classroom or school and describe examples of mixed numbers that they see. How could those examples be modeled? (<math>2\frac{1}{2}</math> cupboards, <math>3\frac{3}{4}</math> filled shelves)</p> <p>What is the answer when 13 cookies are shared by 5 children? What is the remainder? How many whole units are there in <math>\frac{13}{5}</math>? How do you write <math>\frac{13}{5}</math> as a mixed number? How do you multiply <math>6 \times 2\frac{3}{5}</math>?</p>	Identity Property of Multiplication, Renaming fractions	Team students with a mix of language proficiency to provide language practice. Practice multiplying mixed numbers by whole numbers. Discuss ways to write the mixed number as a fraction, multiply the fraction by the whole number, and then write the product as a mixed number.	Brielle exercises for $\frac{3}{4}$ hour each day for 6 days in a row. Altogether, how many hours does she exercise during the 6 days?
8.5	Problem Solving • Comparison Problems with Fractions	<a href="#">4.NF.4c</a> <a href="#">MP 1</a> <a href="#">MP 2</a> Companion pg. 140	How can you use the strategy draw a diagram to solve comparison problems with fractions?	Students will use the strategy <i>draw a diagram</i> to solve comparison problems with fractions. In multiplicative comparison, one amount is a certain number of <i>times as much as</i> or <i>times as many as</i> another amount. This expands on multiplicative comparison problems previously learned in Chapter 2 where one of the factors now involves a mixed number. Examples are provided in the connections column for this.	Bar models	<p>Review bar models using addition, subtraction situations. Suppose Jason has 112 baseball cards and 87 basketball cards. Draw a bar model to help you find how many more baseball cards he has.</p> <p>If Maria has 3 times as many baseball cards as Jason, how much do they have altogether?</p> <p>Suppose Alex is <math>2\frac{1}{2}</math> feet tall. If his brother is 2 times as tall as him, how tall is Alex's brother?</p>	Bar models	<p><b>Grab and Go Literature</b></p>  <p><b>Activities Ruler Challenge</b></p>  Students complete blue Activity Card 6 by finding equivalent fractions using a ruler.	Draw a bar model that shows a pen is 4 times as long as an eraser that is $1\frac{1}{3}$ inches long.

								<p><b>Activities</b> <b>Fraction Bingo!</b></p>  <p>Students complete purple Activity Card 6 by creating pictorial models of fractions and finding equivalent fractions.</p>	
--	--	--	--	--	--	--	--	---	--

**Assessments:**  
[Go Math Chapter 8 Test](#)  
 Go Math Chapter 8 Performance Task: [Dollar Days](#)

**BIG IDEA:** A fraction with a denominator that is a multiple of ten can be easily represented in decimal form. Using models such as decimal squares, grid paper, base 10 blocks, and number lines helps to set the foundation for understanding. When students are taught to read the number 0.25 as *twenty-five hundredths*, they can see the decimal as the same number as the fraction 25/100. Students demonstrate their understanding of decimal fractions by describing or representing them in terms of place-value language (0.25 is 2 tenths and 5 hundredths, or  $2/10 + 5/100$ ).

When students can transition from fractions to and from decimals, this understanding leads to translating to and from various forms: fractions, decimals, word form, place value, and money.

Adapted from Go Math, Teaching for Depth, p. 357E

**Essential Question:** How can you record decimal notation for fractions, and compare decimal fractions?

**Standards:** 4.NF.6, 4 NF.5, 4 MD.2, 4 NF.7

**ELD Standards:**

ELD.PI.4.1-Exchanging information/ideas via oral communication and conversations.

ELD.PI.4.3-Offering opinions and negotiating with/persuading others.

ELD.PI.4.5-Listening actively and asking/answering questions about what was heard.

ELD.PI.4.9- Expressing information and ideas in oral presentations.

ELD.PI.4.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.

ELD.PI.4.12-Selecting and applying varied and precise vocabulary.

Lesson		Standards & Math Practices	Essential Question	Math Content/Strategies	Models/Tools <a href="#">Go Math! Teacher Resources G4</a>	Connections (ENGAGE prior knowledge)	Vocabulary	Academic Language Support	Journal
9.1	Relate Tenths and Decimals	<a href="#">4.NF.6</a> <a href="#">MP 2</a> <a href="#">MP 3</a> <a href="#">MP 4</a>  Companion pg. 143	How can you record tenths as fractions and decimals?	Students will record tenths as fractions and as decimals. A number line shows one way to connect fractions and decimals because both representations can be shown on the same model.	Base-ten blocks, number lines, counters <a href="#">Decimal Models</a> <a href="#">Decimal Place Value Chart</a> <a href="#">Digit Tiles</a>	Derek built a birdhouse with 10 sections. Birds built nests in 4 of the sections of his birdhouse. What fraction of the sections have nests? Can you write that number as a decimal? Can you locate that number on the number line? (Use counters to model the fraction)	Decimal, decimal point, tenth	<b>Math Talk</b>  What I know about fractions helps me understand decimal notation because _____.  Have students write sentences that represent the use of different sets of coins.	Peyton has 2 pizzas. Each pizza is cut into 10 equal slices. She and her friends eat 14 slices. What part of the pizzas did they eat?
9.2	Relate Hundredths and Decimals	<a href="#">4.NF.6</a> <a href="#">MP 4</a> <a href="#">MP 6</a> <a href="#">MP 7</a>  Companion pg. 143	How can you record hundredths as fractions and decimals?	Students will record hundredths as fractions and as decimals. Encouraging students to look for patterns as they record hundredths as fractions and as decimals helps them to see the structure of mathematics.	Base-ten blocks, number lines <a href="#">Decimal Models</a> <a href="#">Decimal Place Value Chart</a> <a href="#">Digit Tiles</a>	Draw a model of a flat to show $42/100$ on base 10 paper. How many squares are shaded? Name the model in fraction and decimal form. Repeat with other fractions or mixed numbers. (1.36, 08, 1.95)	Hundredth	Have students identify what fraction of a dollar each coin represents.  Have students write a problem situation that involves finding two coins: one that's worth 50 cents and one that's worth 5 cents. Have	There are 100 pennies in a dollar. What fraction of a dollar is 43 pennies? Write it as a fraction, as a decimal, and in word form.
9.3	Equivalent Fractions and Decimals	<a href="#">4.NF.5</a> <a href="#">MP 2</a> <a href="#">MP 4</a> <a href="#">MP 6</a>	How can you record tenths and hundredths as	Students will record tenths and hundredths as fractions and decimals. Students apply the relationship they have learned between tenths and	Base-ten blocks, <a href="#">Decimal Models</a>	Use base 10 paper to shade in the $3/10$ inch of rain that fell in the last 24 hours. How many squares are shaded? How can you read the	Equivalent decimals, equivalent fractions		Write $5/10$ in three equivalent forms. Billy walks $6/10$ mile to school each day. Write $6/10$ as hundredths in fraction form and in decimal form.

		<a href="#">MP 8</a> Companion pg. 142	fractions and decimals?	hundredths. In the tenths place, 1 has a value of 0.1, which is ten times the value of 1 in the hundredths place, 0.01.	<a href="#">Decimal Place Value Chart</a> <a href="#">Digit Tiles</a>	number $\frac{3}{10}$ as $\frac{?}{100}$ ? What is $\frac{3}{10}$ as a decimal? What is $\frac{30}{100}$ as a decimal?		them write the numbers in decimal form and use a model or a number line to compare their values. Have students share their problems and solutions with one another.	
9.4	Relate Fractions, Decimals, and Money	<a href="#">4.NF.6</a> <a href="#">MP 2</a> <a href="#">MP 4</a> <a href="#">MP 6</a>  Companion pg. 143	How can you relate fractions, decimals, and money?	Students will learn how to translate among representations of fractions, decimals, and money. Base-ten relationships are the foundation of everything we do with numbers, decimals, and money.	Money pictures, base-ten models, <a href="#">Decimal Models</a> <a href="#">Decimal Place Value Chart</a> <a href="#">Digit Tiles</a>	How many ways can you write \$1.11 with dollar bills, dimes, and pennies? \$1, 1 dime, 1 penny 11 dimes, 1 penny 111 pennies	Dollar, penny, quarter, dime, nickel		Jeffrey says he has 6.8 dollars. How do you write the decimal 6.8 when it refers to money? Explain.
9.5	Problem Solving • Money	<a href="#">4.MD.2</a> <a href="#">MP 1</a> <a href="#">MP 4</a> <a href="#">MP 5</a>  Companion pg. 201	How can you use the strategy act it out to solve problems that use money?	Students will solve problems by using the strategy <i>act it out</i> using money and recording amounts in decimal form.	Quick pictures of money <a href="#">Decimal Models</a> <a href="#">Decimal Place Value Chart</a> <a href="#">Digit Tiles</a>	Model \$0.80 with 1 quarter, 5 dimes, and 1 nickel. How can \$0.80 be shared equally between 2 students?	Dollar, penny, quarter, dime, nickel	   Vocabulary Builder Semantic Mapping can be used to: • learn the meaning and uses of new words; • see words in new contexts; • analyze the relationship between words. Have students consider a new vocabulary word and list as many related words or phrases as possible. This will help students connect the new word and associate its concept to previous knowledge.	Jessie saves \$6 each week. In how many weeks will she have saved at least \$50?
9.6	Add Fractional Parts of 10 and 100	<a href="#">4.NF.5</a> <a href="#">MP 2</a> <a href="#">MP 6</a> <a href="#">MP 7</a> <a href="#">MP 8</a>  Companion pg. 143	How can you add fractions when the denominators are 10 and 100?	Students will add fractions when the denominators are 10 or 100 building on knowledge of the relationship between tenths and hundredths.	Money pictures, base-ten models <a href="#">Decimal Models</a> <a href="#">Decimal Place Value Chart</a> <a href="#">Digit Tiles</a>	James reads $\frac{3}{10}$ of his book Monday and $\frac{20}{100}$ of his book on Tuesday. How much of his book has James read?	Equivalent fraction, hundredths, tenths		Explain how you would use equivalent fractions to solve $0.5 + 0.10$ .  Ned's frog jumped $\frac{38}{100}$ meter. Then his frog jumped $\frac{4}{10}$ meter. How far did Ned's frog jump?
9.7	Compare Decimals	<a href="#">4.NF.7</a> <a href="#">MP 2</a> <a href="#">MP 4</a> <a href="#">MP 6</a>  Companion pg. 145	How can you compare decimals?	Students will learn how to compare decimals to hundredths by reasoning about their size, a skill used in real-life for timed sport competitions, science recording, and comparing money amounts to find the better value.	Base-ten models, <a href="#">Decimal Models</a> <a href="#">Decimal Place Value Chart</a> <a href="#">Digit Tiles</a>	With a number line, use benchmark fractions as decimals (0.0, 0.5, 1.0), to compare 0.4 and 0.78. Compare using base 10 paper.	Greater than, less than, equal to		Show or describe two different ways to complete the comparison using $>$ , $<$ , or $=$ : $0.26 \text{ } \bigcirc \text{ } 0.4$  Elly walks 0.7 mile to school. Mary walks 0.49 mile to school. Write an inequality using $>$ , $<$ , or $=$ to compare the distances they walk to school.

**Assessments:**



[Go Math Chapter 9 Test](#)

Go Math Chapter 9 Performance Task: [Taxi](#)

**\*\*Common Assignment (Option 2, 3<sup>rd</sup> Quarter)** Critical Area 2 Performance Task: [Party Time!](#)

**BIG IDEA:** The study of geometry engages students in exploring polygons. One way to explore polygons is to classify them based on their attributes, such as parallel sides and types of angles. These attributes are dependent on the identification, description, and drawing of points, lines, line segments, rays, angles, and perpendicular and parallel lines, as single components as well as in two-dimensional shapes. It is helpful to begin the process with concrete representations of the polygons and to provide opportunities for students to discuss their observations concerning the polygons. Through building, drawing, and analyzing shapes, students expand their knowledge of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

Students use problems as a context for finding and extending patterns, reasoning about similarities and generate rules to describe numerical and geometric patterns. They use models and tools to describe patterns they find in problems, in numbers, and in geometric figures and to extend these patterns to other situations. Given a geometric pattern or a numerical rule, students should extend the pattern and describe features of the pattern.

Adapted from Go Math, Teaching for Depth, p. 397E

Go Math Professional Development Video: Geometry Grades 3-5  
[Properties of Two-Dimensional Shapes](#)

**Essential Question:** How can you draw and identify lines and angles, and how can you classify shapes?

**Standards:** 4.G.1, 4.G.2, 4.G.3, 4.OA.5

**ELD Standards:**

ELD.PI.4.1-Exchanging information/ideas via oral communication and conversations.

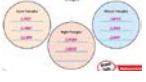
ELD.PI.4.3-Offering opinions and negotiating with/persuading others.


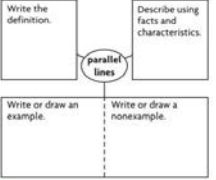
ELD.PI.4.5-Listening actively and asking/answering questions about what was heard.

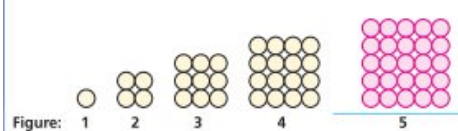


ELD.PI.4.9- Expressing information and ideas in oral presentations.

ELD.PI.4.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.

ELD.PI.4.12-Selecting and applying varied and precise vocabulary.

Lesson	Standards & Math Practices	Essential Question	Math Content/Strategies	Models/Tools <a href="#">Go Math! Teacher Resources G4</a>	Connections (ENGAGE prior knowledge)	Vocabulary	Academic Language Support	Journal	
10.1	Lines, Rays, and Angles	<a href="#">4.G.1</a> <a href="#">MP 4</a> <a href="#">MP 5</a> <a href="#">MP 6</a>  Companion pg. 238	How can you identify and draw points, lines, line segments, rays, and angles?	Students will identify and draw points, lines, line segments, rays, and angles, and name them.	Complete a chart, create figures and label them	Have students share what they know about rectangles, squares, stop signs. Use other objects in the classroom to talk about points, lines, line segments, rays, and types of angles.	Acute angle, angle, line, line segment, obtuse angle, point, ray, right angle, straight angle	<b>Math Talk</b>  Can a line be part of a line segment or a ray? Can a line segment be part of a line or a ray?	Draw and label a figure that has 4 points, 2 rays, and 1 right angle.
10.2	Classify Triangles by Angles	<a href="#">4.G.2</a> <a href="#">MP 3</a> <a href="#">MP 4</a> <a href="#">MP 6</a> <a href="#">MP 7</a>  Companion pg. 239	How can you classify triangles by the size of their angles?	Students will classify triangles by the size of their angles: right triangles, obtuse triangles (one obtuse angle), acute triangles (three acute angles). All triangles have at least two acute angles and their classification is dependent upon the size of the third triangle.	Tables, Venn diagram   Word wall triangles	Have students share what they know about triangles. Use other objects in the classroom to talk about types of triangular shapes and their different angles.  Use the triangle sort activity to sort by angles. <a href="#">Triangle sort activity</a>	Acute triangle, obtuse triangle, right triangle	How could you use 3 line segments to make 2 obtuse angles? Could you position the last 2 line segments so that they would join each other and form a triangle? Explain.	Draw and label an example of a right triangle, an acute triangle, and an obtuse triangle.

10.3	Classify Triangles by Sides	<a href="#">4.G.2</a> <a href="#">MP 3</a> <a href="#">MP 4</a> <a href="#">MP 6</a> <a href="#">MP 7</a>  Companion pg. 239	How can you classify triangles by the length of their sides?	Students will classify triangles by the length of their sides: equilateral (three sides same length), isosceles (two sides the same length), and scalene (no sides the same length).	Venn diagram  Word wall triangles	Using the same triangles from lesson 10.2, have students analyze the side lengths of each and identify the 3 types of triangles.  Use the triangle sort activity to sort by sides. <a href="#">Triangle sort activity</a>	Equilateral triangle, isosceles triangle, scalene triangle	Is it possible to have a triangle with a right angle and an obtuse angle? Explain.  <b>Vocabulary Builder</b> <b>Vocabulary Builder</b> <small>Materials: Word Description (see #Teacher Resources)</small> <b>Word Description</b> Have students use the Word Description graphic organizer to define the new vocabulary words in this lesson and any previous terms in this chapter with which they have difficulty. Drawing examples and nonexamples is important to distinguish between the different types of lines or angles.	Draw and label an example of an equilateral triangle, an isosceles triangle, and a scalene triangle.
10.4	Parallel Lines and Perpendicular Lines	<a href="#">4.G.1</a> <a href="#">MP 4</a> <a href="#">MP 5</a> <a href="#">MP 6</a>  Companion pg. 238	How can you identify and draw parallel lines and perpendicular lines?	Students will identify and draw parallel lines and perpendicular lines.	Draw models 	Have students compare streets that intersect versus streets that are parallel. Let students find classroom examples of intersecting, parallel, and perpendicular lines.	Intersecting lines, parallel lines, perpendicular lines	  <b>Vocabulary Builder</b> <small>Materials: magazines, scissors, glue, paper, stapler</small> <b>Identify Quadrilaterals</b> Have students write the name and definition of each type of quadrilateral at the top of separate half-sheets of paper. Then have students look through old magazines and cut out examples of each type of quadrilateral. Students then glue the cutout examples onto the half-sheet of paper for each quadrilateral. When done, have students create a booklet by folding a sheet of paper in half and inserting the half-sheets inside. Staple the pages together. Students can title their booklet "Quadrilaterals" and draw an example of each type on the front cover.	Draw and label an example of two parallel lines that are perpendicular to a third line.
10.5	Classify Quadrilaterals	<a href="#">4.G.2</a> <a href="#">MP 2</a> <a href="#">MP 4</a> <a href="#">MP 6</a>  Companion pg. 239	How can you sort and classify quadrilaterals?	Students will sort and classify quadrilaterals in as many ways as possible by paying attention to attributes such as angles, sides, and parallel lines.	Venn diagram, Pattern blocks, Tangrams	Use pattern blocks and/or tangrams and have students sort and classify each piece in as many ways as possible. <a href="#">Quadrilateral Sort activity</a>	Parallelogram, rectangle, rhombus, square, trapezoid, quadrilateral	How are a square and a rectangle alike, and how are they different?  Does a circle have a horizontal line of symmetry? A vertical line of symmetry? A diagonal line of symmetry? At what point do all these lines of symmetry intersect?	Draw and label an example of each type of quadrilateral: trapezoid, parallelogram, rhombus, rectangle, and square.
10.6	Line Symmetry **option to teach with 10.7	<a href="#">4.G.3</a> <a href="#">MP 2</a> <a href="#">MP 3</a> <a href="#">MP 5</a>  Companion pg. 240	How can you check if a shape has line symmetry?	Students will determine whether a figure has 0, 1, or many lines of symmetry.	Folded paper	Have students trace a shape, then fold in half to check for symmetry. Use letters in their names.	Line of symmetry, line symmetry, diagonal, horizontal, vertical	How many lines can you draw through the center of a circle so that one part of the circle exactly matches the other part?	Write a word that has line symmetry, like the word OHIO. Draw the line(s) of symmetry for each letter.
10.7	Find and Draw Lines of Symmetry	<a href="#">4.G.3</a> <a href="#">MP 1</a> <a href="#">MP 7</a> <a href="#">MP 8</a>	How do you find lines of symmetry?	Students will identify and draw lines of symmetry in two-dimensional figures.	Tables, pattern blocks, <a href="#">isometric grid paper</a>	Use a rectangle to model drawing lines of symmetry. Is a diagonal line a line of symmetry? Draw a shape with more than 1 line of symmetry.  Use isometric grid paper or pattern blocks	Line of symmetry, line symmetry, diagonal, horizontal, vertical		Draw a picture of a figure that has more than 3 lines of symmetry. Draw the lines of symmetry.

10.8	Problem Solving ● Shape Patterns	Companion pg. 240 <a href="#">4.OA.5</a> <a href="#">MP 4</a> <a href="#">MP 7</a> <a href="#">MP 8</a>  Companion pg. 42	How can you use the strategy act it out to solve pattern problems?	Students will use the strategy <i>act it out</i> to solve pattern problems. Students must be able to describe a geometric pattern accurately in order to extend it or to find a missing figure.	Problem solving graphic organizer	<p>What pattern do you see? 1,5,5,1,5,5,1 5, __ 2,6,10,14,18, __</p> <p>Draw what might be the next figure in the pattern.</p>  <p>Figure: 1 2 3 4 5</p>	Shape pattern, figure	<p>Pair students. Using math shapes, have each student draw and color a repeating pattern of sides, and what repeats. Have each partner describe their pattern to the other, using shape, color, number of sides, and what repeats. Then have students exchange papers and describe their partner's pattern.</p> <p><b>Grab and Go</b></p>  <p><b>Activities</b> <b>Connecting Vertices</b> Students complete puzzle activity. Card 13 by drawing and classifying polygons. <b>Literature</b> <b>Skateboarding Takes Shape</b> Students read about how puzzle figures and angles are used in skateparks. <b>Activities</b> <b>Concentrate!</b> Students complete orange Activity Card 13 by matching the names of lines, angles, and two-dimensional shapes to pictures. <b>Literature</b> <b>Picture Perfect!</b> Students complete orange Activity Card 13 by matching the names of lines, angles, and two-dimensional shapes to pictures.</p> <p><b>Literature Connection</b></p> <p><b>Literature</b> <b>A Mirror Image</b> From the Grab-and-Go™ Differentiated Centers Kit Students read about examples of symmetry found in the real world.</p>	<p>Find a pattern in your classroom. Describe and extend the pattern.</p> <p>Draw the next 2 figures. What would the 10<sup>th</sup> shape look like?</p> 
------	----------------------------------	---	--	---	-----------------------------------	---	-----------------------	---	---

**Assessments:**

[Go Math Chapter 10 Test](#)

Go Math Chapter 10 Performance Task: [Quilting Bee](#)

[SBAC Practice Problems Hyperlink](#)

[SBAC Claim 1 Example Stems](#)