Grade 3 Go Math! Quarter 3 Planner **9-12 Days**
CHAPTER 8 Understanding Fractions

BIG IDEA: Students use visual models, including area models, fraction strips, and the number line to develop conceptual understanding of the meaning of a fraction as a number in relationship to a defined whole. They work with unit fractions to understand the meaning of the numerator and denominator. In Grade 3, denominators are limited to 2, 3, 4, 6, and 8.

Students will understand that:

- A fraction is a number that names part of a whole.
- The numerator of a fraction tells the number of parts being counted; the denominator tells the number of equal parts there are in all.
- Fraction models provide visual fraction comparisons.
- Shapes can be partitioned into equal areas.

Students will be skilled at or be able to:

- Show a fraction on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into equal parts.
- Partition shapes into parts with equal areas and label the area of each part as a unit fraction of the whole.

Adapted from The Common Core Math Companion (Gojak and Miles, 2015, pg. 110) and Go Math: Teaching for Depth, pg. 319E

Professional Development Videos:

Fraction Concepts:

- Segment 1: Identify Fractions
- Segment 2: Models for Fractions

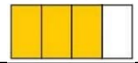
Quarter 3 Fluency Resources:

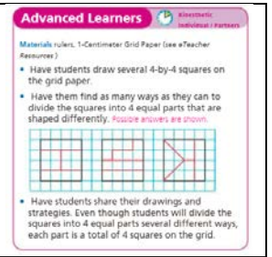
- Fluency Resources in Go Math
- Building Fluency through Word Problems
- Building Fluency through Number Talks

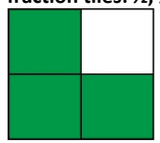
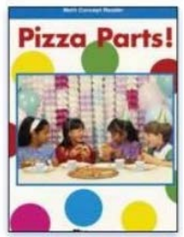
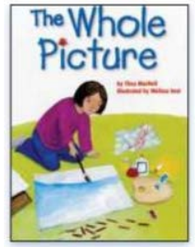
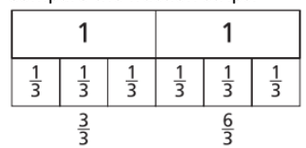
ESSENTIAL QUESTION: How can you use fractions to describe how much or how many?
STANDARDS: 3.NF.1, 3.NF.2, 3.NF.3

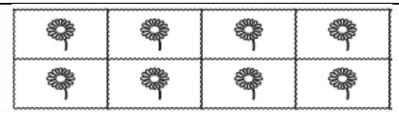
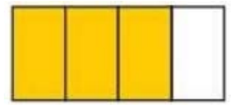
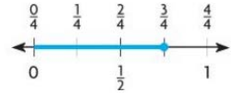
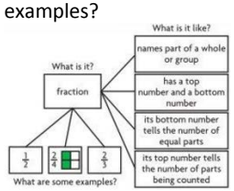
ELD STANDARDS:

ELD.PI.3.1-Exchanging information/ideas via oral communication and conversations.
ELD.PI.3.3-Offering opinions and negotiating with/persuading others.
ELD.P1.3.5-Listening actively and asking/answering questions about what was heard.
ELD.PI.3.9- Expressing information and ideas in oral presentations.
ELD.PI.3.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.
ELD.PI.3.12-Selecting and applying varied and precise vocabulary.

Lesson		Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G3	Connections	Vocabulary	Academic Language Support	Journal
8.0	Opening Task	OPENING TASK: Fractions – "Coins in the U.S." (pg. 317 – 318 (Additional resources online)				• Relating money to fractions. • Determining equal parts.			
8.1	Equal Parts of a Whole	3.NF.1 MP.2,4,5	What are equal parts of a whole?	The concept of parts of a whole, and equal and unequal parts is explored. Students need to understand the difference between equal and unequal parts before they can identify and name fractional parts. Equal parts can be the same size and still be different.	Various shapes for Area model	Draw two circles of the same size on the board, dividing each into equal parts to illustrate the halves, thirds, fourths, fifths, and eighths. Have volunteers count the number of equal parts in each circle and write the number above the circle.	eighths, equal parts, fourths, halves, sixths, thirds, whole area model 	**ELD Standards** ELD Standards ELA/ELD Framework ELPD Framework **Access Strategies**	Describe how 4 friends could share a sandwich equally. Option 2: Advanced Learners Page. 323:

								Organizing Learning for Student Access to Challenging Content Student Engagement Strategies Problem Solving Steps and Approaches	
8.2	Equal Shares	3.NF.1 MP.1,4,7	Why do you need to know how to make equal shares?	Students experience making equal shares in order to build a foundation in partitioning. There are several possibilities for making equal shares. There could be more people than objects to be shared, there could more objects than people to share them, or there could be exactly the same number of objects and people.	Number lines, Area model, Counters, Pattern blocks, Square tiles, Grid paper Fraction Tiles	Draw lines to show how much each person gets. 6 friends share three bars equally.  Extension: 4 Friends Share 3 Bars Equally. 5 Friends Share 3 Bars Equally	equal groups, equal shares	**Equitable Talk** Accountable Talk Simply Stated Equitable Talk Conversation Prompts Accountable Talk Posters Five Talk Moves Bookmark	Draw a diagram to show 3 pizzas shared equally among 4 friends.
8.3	Unit Fractions of a Whole	3.NF.1 MP.2,4,7	What do the top and bottom numbers of a fraction tell?	The word “fraction” and the concept of a “unit fraction” are introduced. Students explore how to find the whole when given a part of it.	Number lines, Area model, Counters, Pattern blocks, Square tiles, Grid paper Fraction Tiles	If 6 people share a fruit bar, how much will each person get? How much will two people get? 3 people? 4 people? 5? 6? Emphasize the concept of the numerator as the counting number.  How much is one part of a fruit bar that is cut into 6 equal parts?	fraction, unit fraction, equal shares, partition	**Cooperative Learning** Cooperative Learning Role Cards Collaborative Learning Table Mats Seating Chart Suggestions	Draw a picture to show what 1 out of 3 equal parts looks like. Then write the fraction.
8.4	Fractions of a Whole	3.NF.1 MP.2,4,7	How does a fraction name part of a whole?	In this lesson, students use models to represent more than one part of a whole that is divided into equal parts. Students learn that a fraction can name more than 1 equal part of a whole.	Number lines, Area model, Counters, Pattern blocks, Square tiles, Grid paper Fraction Tiles	Write a fraction in words and in numbers that name the shaded part.  How many equal parts make up the whole shape? How many parts are shaded? __parts out of __parts are shaded.	numerator, denominator	**From the Grab-and-Go™ Differentiated Centers Kit** Students read about how to find equal parts to write fractions.	Draw a rectangle and divide it into 4 equal parts. Shade 3 parts. Then write the fraction that names the shaded part.

8.5	Fractions on a Number Line	3.NF.2a,b MP.1,4,7	How can you represent and locate fractions on a number line?	Students are introduced to using a number line to represent fractions. A number line is a measurement model. A fraction on a number line represents the distance from 0 to the location marked on the line.	Number lines, Area model, Counters, Pattern blocks, Square tiles, Grid paper Fraction Tiles	Model and draw fractions on a number line. **Provide number lines. Have students build and draw the following using fraction tiles: ½, ¼, ¾…** 	model number line fractions	**Literature**  *Pizza Parts!i* **Literature** **Pizza Parts!**  Students read about how to find equal parts to write fractions. **Literature**  *The Whole Picture* **From the Grab-and-Go™ Differentiated Centers Kit** Students read the book and model fractional parts.	Build 3/6 with models and draw this using a number line. Explain how showing fractions with models and a number line are alike and different.
8.6	Relate Fractions and Whole Numbers	3.NF.3c MP.1,4,6,7	When might you use a fraction greater than 1 or a whole number?	Students need to use abstract reasoning as they make connections between fractions greater than 1 and fractions less than 1. A common misconception is that a fraction is a number between 0 and 1. Students learn that a fraction can be less than 1, equal to 1, or greater than 1.	Area model, Number lines, Counters, Pattern blocks, Square tiles, Grid paper	James ran 2 miles and Sabrina ran 6/3 of a mile. Did James and Sabrina run the same distance? Use fraction strips to show the distances. Compare the fraction strips.  What is another fraction that will equal the same amount? Examples: 8/4, 10/5, 12/6… What is my pattern?	fraction greater than 1	How many fourths are equal to 3 wholes? Explain how you know using drawings.
8.7	Fractions of a Group	3.NF.1 MP.1,4,5	How can a fraction name part of a group?	Students explore fractions of a set or group. Note: objects do not have to be the same size for fractions of a group. Students must see the group as a whole.	Groups or Sets, Counters	Write a whole number and a fraction greater than 1 to name the part filled.  	fractions group	 Complete the whole number and fraction greater than 1. Think 1 box = 1 or 8/8
8.8	Find Part of a Group Using Unit Fractions	3.NF.1 MP.4,5	How can a fraction tell how many are in part of a group?	Students explore finding part of a group. This lesson lays the foundation for multiplication of fractions.	Counters, Groups or Sets	**Have students build this with counters:** Mark bought 8 stamps for postcards. He gave his friend ¼ of them. How many stamps did Mark give to his friend?	Part of a group	Show 12 with counters. Explain how to find which is greater: $\frac{1}{4}$ of 12 or $\frac{1}{3}$ of 12.

								Math Representations: Area Model  Number Line  Set Model  TE: pg. 319E Vocabulary Strategy: Have students complete a word definition map using one of the vocabulary terms in the chapter. The map should answer these questions: 1. What is it? 2. What is it like? 3. What are some examples?  TE: pg. 319H	
8.9	*Problem Solving • Find the Whole Group Using Unit Fractions	3.NF.1 MP.1,4,5,6	How can you use the strategy draw a diagram to solve fraction problems?	Students apply their knowledge of fractions to solve problems involving a fraction of a group and the number of objects in that fractional part.	Graphic organizer Counters Fraction Tiles	**Have students build this with counters on a print out of fraction tiles.** Take out 6 counters. Make ½ of them red. Take out 8 counters. Make ¼ of them red. There are 4 girls in the group. If half the group is girls, how big is the group? There are 3 yellow pencils. If 1/3 of the pencils are yellow, how many pencils are there in all?	whole group		Have students solve this with counters and fraction tiles and explain. There are 3 apple juice boxes in the cooler. One fourth of the juice boxes in the cooler are apple juice. How many juice boxes are in the cooler?
Assessments: Go Math Chapter 8 Test Go Math Chapter 8 Performance Task									

Grade 3 Go Math! Quarter 3 Planner **15-16 Days**

CHAPTER 9 Compare Fractions

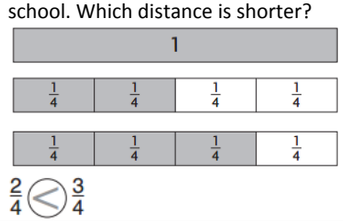
BIG IDEA: Students build on their work with fractions to reason about fraction size and structure to compare quantities. They build equivalent fractions and use a variety of strategies to compare fractions. Students defend their reasoning and critique the reasoning of others using both visual models and their understanding of the structure of fractions. Students compare fractions by using <, =, and >. They generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3) and explain why the fractions are equivalent. They also write whole numbers as fractions and recognize fractions that are equivalent to whole numbers. When comparing fractions, students compare two fractions with the same numerator or the same denominator by reasoning about their size. They recognize that comparisons are valid only when the two fractions refer to the same whole. In grade 3, denominators are limited to 2, 3, 4, 6, and 8.
Adapted from The Common Core Math Companion (Gojak and Miles, 2015, pg. 110) and Go Math: Teaching for Depth, pg. 405E

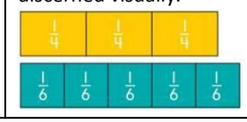
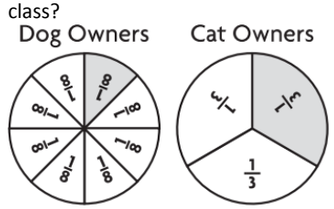
Professional Development Videos:
Fraction Concepts:
- Segment 3: Compare Fractions
- Segment 4: Equivalent Fractions

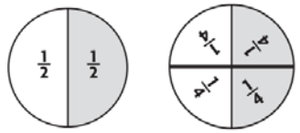
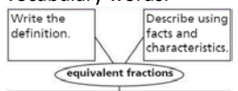
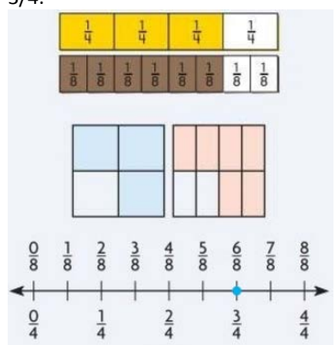
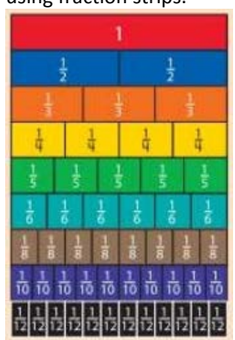
Quarter 3 Fluency Resources:
- Fluency Resources in Go Math
- Building Fluency through Word Problems
- Building Fluency through Number Talks

ESSENTIAL QUESTION: How can you compare fractions?
STANDARDS: 3.NF.3d, 3.NF.3a, 3.NF.3b

ELD STANDARDS:
ELD.PI.3.1-Exchanging information/ideas via oral communication and conversations.
ELD.PI.3.3-Offering opinions and negotiating with/persuading others.
ELD.P1.3.5-Listening actively and asking/answering questions about what was heard.
ELD.PI.3.9- Expressing information and ideas in oral presentations.
ELD.PI.3.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.
ELD.PI.3.12-Selecting and applying varied and precise vocabulary.

Lesson		Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G3	Connections	Vocabulary	Academic Language Support	Journal
9.1	Problem Solving • Compare Fractions	3.NF.3d MP.1,3,4,5	How can you use the strategy *act it out* to solve comparison problems?	Students use fraction strips or fraction circles to compare fractions. Comparisons are valid only when the two fractions refer to the same whole. Guide students to align one end of the fraction strips when comparing length of models.	Fraction Tiles Fraction Circles	**Compare the lengths.** **Use counters to build fractions determine if they are less than, greater than, or equal to: ½, ¾, 3/6, 3/8….** Nancy walked 2/4 mile to the store. Then she walked 3/4 miles to school. Which distance is shorter? 	compare, greater than (>), less then (<), equal to (=)	**ELD Standards** ELD Standards ELA/ELD Framework ELPD Framework **Access Strategies** Organizing Learning for Student Access to Challenging Content Student Engagement Strategies	Use models and explain how you can find whether 5/6 or 5/8 is greater.

9.2	Compare Fractions with the Same Denominator	3.NF.3d MP.2,3,5,8	How can you compare fractions with the same denominator?	Students compare fractions with the same denominator by shading models, using fraction strips, locating them on a number line, and using reasoning. When denominators are the same, you can compare the number of pieces, which represent the numerators.	Models Fraction Tiles Number line	**Use fraction tiles to determine which is greater:** **2/4 or 3/4** **4/6 or 5/6** **3/8 or 5/8** Roundtable Pizza make a special pizza. Of the toppings ¼ is peppers and ¾ is ham. Does the pizza have more peppers than ham?  $\frac{3}{4} > \frac{1}{4}$	denominator	Problem Solving Steps and Approaches **Equitable Talk** Accountable Talk Simply Stated Equitable Talk Conversation Prompts Accountable Talk Posters Five Talk Moves Bookmark Word Wall **Cooperative Learning** Cooperative Learning Role Cards Collaborative Learning Table Mats Seating Chart Suggestions Math reproducible Math talk Vocabulary builder Advance learners Representations: Manipulatives can be used to compare fractions if their difference can be discerned visually. 	Which is greater 2/6 or 5/6? Explain how you can use reasoning to compare two fractions with the same denominator.
9.3	Compare Fractions with the Same Numerator	3.NF.3d MP.1,2,4,7	How can you compare fractions with the same numerator?	Students explore the relationship of the number of fractional parts and the size of each part. Students use their prior knowledge: "The *more* pieces a whole is divided into, the smaller the pieces are. The *fewer* pieces a whole is divided into, the larger the pieces are." After determining which fraction is comprised of smaller pieces, they can reason about the comparison. Ex. 2/4 < 2/3. "Since fourths are smaller than thirds, then two fourth sized pieces are smaller than two third sized pieces."	Area Models Fraction Tiles	Cindy takes a survey of her class. 1/8 of the class has dogs, and 1/3 of the class has cats. Are there more dog owners or cat owners in Cindy's class?  $\frac{1}{8} < \frac{1}{3}$	numerator		Who ate more of the pizza Martha or Sergio?: Martha ate 2/4 Sergio ate 2/5 Explain how the number of pieces in a whole relates to the size of each piece.
9.4	Compare Fractions	3.NF.3d MP.1,2,4,6	What strategies can you use to compare fractions?	Students build their proficiency in comparing fractions using the *Missing Pieces* Strategy, *Same Denominator* Strategy, *Same Numerator* Strategy	Area Model Fraction Tiles	Discuss how you can compare 3/4 and 3/8. **Possible answer:** I can use the same numerator strategy. The fourth-size pieces will be larger than the eighth-size pieces. So, 3 eighths pieces will be less than 3 fourths pieces.	Compare fractions		Which is greater 2/3 or 4/5? Explain how to use the missing pieces strategy to compare two fractions. Include a diagram with your explanation.
9.5	Compare and Order Fractions	3.NF.3d MP.3,4,5,6	How can you compare and order fractions?	Students order three fractions by comparing two fractions at a time to determine the greater or the lesser fraction. They can then use the result of the comparisons to compare one of the first two fractions to the third fraction.	Fraction Tiles Number line	Order 5/8, 2/8 and 7/8 from least to greatest.  So, the order from least to greatest is 2/8, 5/8, 7/8	order		Order from least to greatest. 3/4, 3/6, 3/3. Explain how you determined the order of the fractions.

9.6	Investigate • Model Equivalent Fractions	3.NF.3a MP.4,5,7	How can you use models to find equivalent fractions?	Students learn that equal areas show equivalent fractions. The number of equal parts can change as long as the total area remains the same. Students divide larger parts to make an equivalent fraction with smaller parts.	Area model, Number line Fraction Tiles	**Use fraction tiles to generate all the fractions equal to 1/2.** Find a fraction that is equivalent to 1/2.  1/2 = 2/4	equivalent, equivalent fractions	TE: pg. 365 E Vocabulary strategy: Have students complete a word description diagram for one or more vocabulary words. 	Draw a number line that shows an equivalent fraction for 1/3. Label your number line and explain how you know the fractions are equivalent.
9.7	Equivalent Fractions	3.NF.3b MP.1,3,4,8	How can you use models to name equivalent fractions?	This lesson extends the learning from Lesson 9.6. Students group smaller parts to make an equivalent fraction.	Area model, Number line, Fraction Tiles	**Use fraction tiles to show fractions equal to:** **1/4, 3/4/ 2/3…** **What is my pattern?** Danny used 3/4 of wrapping paper. Find a fraction that is equivalent to 3/4. 	equivalent, equivalent fractions	TE p. 365H Activities: 1. Equivalent Fraction: Create equivalent chains using fraction strips.  2. Compare it: Compare equivalent fractions using fraction strips.	Explain how you can find a fraction that is equivalent to 1/4.

Assessments:

Go Math Chapter 9 Test

Go Math Chapter 9 Performance Task

HMH Performance Task: A Barbeque

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Grade 3 Go Math! Quarter 3 Planner **14-15 Days**

CHAPTER 10 Time, Length, Liquid Volume, and Mass

BIG IDEA: In Chapter 10, students focus on telling and writing time to the nearest minute and measure time intervals in minutes. First, students will learn to tell time to the nearest minute and solve elapsed-time word problems with the use of clock models and number lines. Next, students will estimate and weigh objects by filling containers to understand the size and weight of a liter, gram, and kilogram. Third graders will also solve problems involving mass and volume.
Adapted from The Common Core Math Companion (Gojak and Miles, 2015, pg. 180) and Go Math: Teaching for Depth, pg. 405E

Professional Development Videos:
Multiplication and Division: Strategies and Facts:

- Segment 3: The Distributive Property
- Segment 5: Effective Drill and Practice

Quarter 3 Fluency Resources:

- Fluency Resources in Go Math
- Building Fluency through Word Problems
- Building Fluency through Number Talks

ESSENTIAL QUESTION: How can you tell time and use measurement to describe the size of something?
STANDARDS: 3.MD.1, 3.MD.4

ELD STANDARDS:
ELD.PI.3.1-Exchanging information/ideas via oral communication and conversations.
ELD.PI.3.3-Offering opinions and negotiating with/persuading others.
ELD.P1.3.5-Listening actively and asking/answering questions about what was heard.
ELD.PI.3.9- Expressing information and ideas in oral presentations.
ELD.PI.3.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.
ELD.PI.3.12-Selecting and applying varied and precise vocabulary.

Lesson		Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G3	Connections	Vocabulary	Academic Language Support	Journal
10.1	Time to the Minute	3.MD.1 MP.2,3,6	How can you tell time to the nearest minute?	Students are expected to be able to tell time to the minute focusing on minutes before the hour and minutes after the hour and counting by 5s to tell time. **Make or Use Clocks (make a clock or use the clock in the manipulatives kits).** ****Clock Pattern – Teacher Resource Book pgs. TR45-46**	Analog clock Digital clock	**Have students use a clock to show 6:17. Have them write the time. Write one way you can read the time.**  The time is 6:17, or seventeen minutes after six.	minute, analog clock, digital clock, half hour, hour, quarter hour, fourth, half	**ELD Standards** ELD Standards ELA/ELD Framework ELPD Framework **Access Strategies** Organizing Learning for Student Access to Challenging Content Student Engagement Strategies Problem Solving Steps and Approaches	Draw a clock showing a time to the nearest minute. Write the time as many different ways as you can.
10.2	A.M. and P.M	3.MD.1 MP.1,2,4	How can you tell when to use A.M. and P.M. with time?	Students learn to distinguish between time in the A.M. and time in the P.M.	Number line, Analog clock Digital clock	**Write time for the activity. Use A.M. or P.M.** **Leave school**	A.M., midnight, noon, P.M.		Write your schedule for today. List each activity with its starting time. Write A.M. or P.M. for each time.

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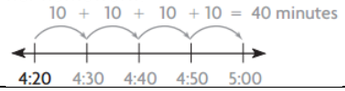
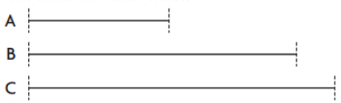
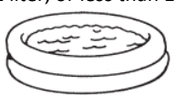
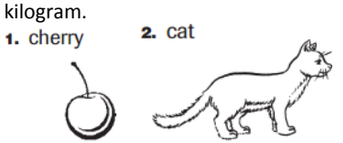
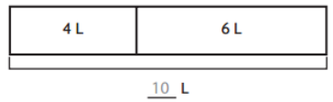
								**Equitable Talk** Accountable Talk Simply Stated Equitable Talk Conversation Prompts Accountable Talk Posters Five Talk Moves Bookmark Word Wall **Cooperative Learning** Cooperative Learning Role Cards Collaborative Learning Table Mats Seating Chart Suggestions ***Activities*** ***Time After Time***  Students complete blue Activity Card 8 by reading, writing, and showing time to the minute in analog and digital forms.	
10.3	Measure Time Intervals	3.MD.1 MP.1,3,4,8	How can you measure elapsed time in minutes?	Students use a number line and addition to find the elapsed times of everyday events. Models such as number lines allow students to learn new concepts using a familiar tool.	Number line Analog clock	Sara starts her homework at 4:20 P.M. She finishes at 5:00 P.M. How much time does Sara spend doing her homework? 	elapsed time		Describe two different methods to find the elapsed time from 2:30 P.M. to 2:58 P.M.
10.4	Use Time Intervals	3.MD.1 MP.1,3,4,8	How can you find a starting time or an ending time when you know the elapsed time?	Students use two strategies to find starting times and ending times: using a number line and using an analog clock.	Number line Analog clock	The ending time is 4:05 P.M. Use a clock and a number line to find the starting time if the elapsed time is 35 minutes.	analog clock time intervals		Describe a situation in your life when you need to know how to find a starting time.
10.5	Problem Solving: Time Intervals	3.MD.1 MP.1,3,4,6	How can you use the strategy *draw a diagram* to solve problems about time?	Students use the problem solving graphic organizer and the strategy; *draw a diagram*, to solve problems by counting forward from a time or counting back from a time.	Graphic organizer Number line	As soon as Cindy got home, she worked on her book report for 45 minutes. The she did chores for 30 minutes. She finished at 5:15 P. M. What time did Cindy get home?	time intervals		Write a multistep word problem that has at least two amounts of elapsed time. The problem may require finding a starting time
10.6	Measure Length	3.MD.4 MP.4,5,6	How can you generate measurement data and show the data on a line plot?	Students measure objects to the nearest half and fourth inch. Students begin to understand that smaller units of measure are more accurate than larger units. Line plots are used as a tool to record measurement data.	Rulers, Number line	Use a ruler to measure lines A-C to the nearest half inch. 	inch		Measure the lengths of 10 colored pencils to the nearest fourth inch. Then make a line plot of the data.
10.7	Estimate and Measure Liquid Volume	3.MD.2 MP.4,5,6	How can you estimate and measure liquid volume in metric units?	Students investigate liquid volume and the metric unit of a liter (L) to help them become familiar with how much 1 liter actually is.	Different sized containers	A wading pool is filled with water. Is the amount more than 1 liter, about 1 liter, or less than 1 liter? 	liquid volume, liter (L)		Name a container that you see at home that when filled has a liquid volume of about 1 liter.
10.8	Estimate and Measure Mass	3.MD.2 MP.4,5,6,7	How can you estimate and measure mass in metric units?	Students investigate mass and the metric units of a gram (g) and a kilogram (kg) in order to help students become familiar with the mass of 1 gram and of 1 kilogram, and to estimate the amount of mass in everyday objects.	Various objects, Pan balance	Choose the unit you will use to measure the mass. Write gram or kilogram. 1. cherry 2. cat 	gram (g), kilogram (kg), mass		Name an object in your home that has a mass of about 1 kg.

10.9	Solve Problems About Liquid Volume and Mass	3.MD.2 MP.1,2,4,7	How can you use models to solve liquid volume and mass problems?	Students apply knowledge from lessons 10.7 & 10.8 to solve problems involving liquid volume and mass using bar models, equations and measurement tools.	Bar Models	Sam's watering can holds 4 liters of water. Tracy's watering can holds 6 liters of water. What is the total liquid volume of both watering cans? **Use a bar model.** 	Liquid volume and mass	***Literature*** ***Late for School***  Students read about Kim's late start and her attempts to get to school on time. ***Games*** ***Matching Time***  Students practice telling time to the minute to match cards.	Write a problem that can be solved with a bar model that shows equal liters. Then solve the problem.
Assessments: Go Math Chapter 10 Test Go Math Chapter 10 Performance Task									

Grade 3 Go Math! Quarter 3 Planner **14-15 Days**
CHAPTER 11 Perimeter and Area

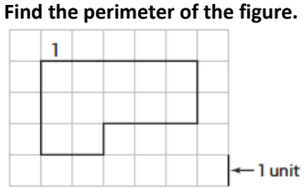
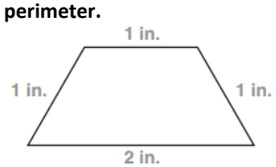
BIG IDEA: In Chapter 11, students reason with shapes and their attributes, including perimeter and area. At this level, third graders will recognize area as an attribute of two-dimensional regions. Students will measure the area of a shape by finding the number of square units needed to cover the shape. Students will learn that rectangular arrays can be decomposed into identical rows or identical columns. Students will also connect the concept of area to multiplication by decomposing rectangles into rectangular arrays of squares. The standards in this unit strongly support one another because perimeter, like area, is an attribute of a shape. Students will understand that perimeter and area are attributes of plane figures. Students will be able to find the perimeter and area of rectangles to compare rectangles with the same perimeter and different areas or with the same area and different perimeters.
Adapted from The Common Core Math Companion (Gojak and Miles, 2015, pg. 186) and Go Math: Teaching for Depth, pg. 451E

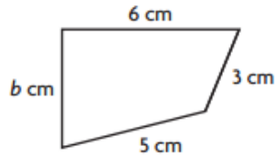
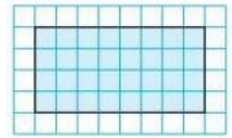
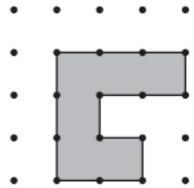
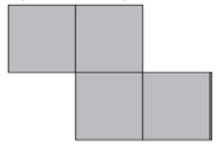
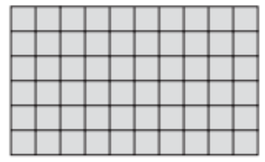
Professional Development Videos:
Measurement and Geometry: Perimeter, Area, and Volume
- Segment 1: The Three-Staged Teaching Model
- Segment 2: Capacity with Customary Units

Quarter 3 Fluency Resources:
- Fluency Resources in Go Math
- Building Fluency through Word Problems
- Building Fluency through Number Talks

ESSENTIAL QUESTION: How can you solve problems involving perimeter and area?
STANDARDS: 3.MD.5a-b, 3.MD.6, 3.MD.7a, 3.MD.8

ELD STANDARDS:
ELD.PI.3.1-Exchanging information/ideas via oral communication and conversations.
ELD.PI.3.3-Offering opinions and negotiating with/persuading others.
ELD.P1.3.5-Listening actively and asking/answering questions about what was heard.
ELD.PI.3.9- Expressing information and ideas in oral presentations.
ELD.PI.3.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.
ELD.PI.3.12-Selecting and applying varied and precise vocabulary.

Lesson		Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G3	Connections	Vocabulary	Academic Language Support	Journal
11.1	Investigate • Model Perimeter	3.MD.8 MP.1,3,4,7	How can you find perimeter?	Students learn that perimeter represents the distance around a shape. ***peri*** = around or surrounding, ***meter*** = unit of length	Geoboard or Dot paper	**Find the perimeter of the figure.** 	perimeter	**ELD Standards** ELD Standards ELA/ELD Framework ELPD Framework **Access Strategies** Organizing Learning for Student Access to Challenging Content Student Engagement Strategies	Draw a rectangle and another figure that is not a rectangle by tracing lines on grid paper. Describe how to find the perimeter of both figures.
11.2	Find Perimeter	3.MD.8 MP.4,5,6,7	How can you measure perimeter?	Students estimate and measure perimeter and then check for reasonableness.	Rulers	**Use an inch ruler to find the perimeter.** 	perimeter		Draw two different figures that each have a perimeter of 20 units using grid paper.

						1 + 1 + 2 + 1 = 5 So, the perimeter of the figure is 5 inches.		[Problem Solving Steps and Approaches](#)	
11.3	Algebra • Find Unknown Side Lengths	3.MD.8 MP.1,4,7,8	How can you find the unknown length of a side in a plane figure when you know its perimeter?	Students use algebra concepts to determine the perimeter of a polygon with an unknown length. Students also write addition and multiplication equations to find the perimeter.	Rulers, Shapes	**Find the unknown side lengths.** Perimeter = 18 centimeters  _____ centimeters	Unknown lengths	**Equitable Talk** [Accountable Talk Simply Stated](#) [Equitable Talk Conversation Prompts](#) [Accountable Talk Posters](#) [Five Talk Moves Bookmark](#) [Word Wall](#) **Cooperative Learning** [Cooperative Learning Role Cards](#) [Collaborative Learning Table Mats](#) [Seating Chart Suggestions](#) [Representations](#)  Because measurement of area is recorded in square units, it is appropriate that the rectangle serves as a very common model for studying area.	Explain how to write and solve an equation to find an unknown side length of a rectangle when given the perimeter.
11.4	Understand Area	3.MD.5,5a MP.2,4,5,6	How is finding the area of a figure different from finding the perimeter of a figure?	Students are introduced to the concept of area. They also look at the similarities and differences between area and perimeter. This lesson lays the foundation for which students build their knowledge of area.	Geoboard or Dot Paper	**Count to find the area of the figure.**  Area = _____ square units	area, square unit (sq un), unit square		Draw a rectangle using dot paper. Find the area, and explain how you found your answer.
11.5	Measure Area	3.MD.5b, 3.MD.6 MP.2,4,5,6	How can you find the area of a plane figure?	Students find the areas of figures by tiling them. They see that in order to tile correctly, they should not leave any gaps or have any tiles overlap. Students learn that the smaller the unit square, more unit squares will be needed.	1" square tiles, Grid paper, 1 cm. Cubes	**Find the area of the figure. Each square is 1 square inch.**  Area = ___square inches	area		Explain how to find the area of a figure using square tiles.
11.6	Use Area Models	3.MD.7, 3.MD.7a MP.1,3,6,8	Why can you multiply to find the area of a rectangle?	This lesson lays the foundation for students to learn how to multiply in order to find areas of a variety of shapes. It also lays the groundwork for finding areas using formulas, which students will learn in later courses.	Grid paper, Square Tiles, Cubes	**Use multiplication to find the area of the figure. Each unit square is 1 square meter.**  1. Count the number of rows ___ 2. Count the number of unit squares in each row ___ 3. Multiply the number of rows by	multiplication, repeated addition		Describe each of the three methods you can use to find the area of a rectangle.

						the number in each row to find the area.			
Assessments: Go Math Chapter 11 Test Go Math Chapter 11 Performance Task									