| 2017-2018 | Grade 2 Go Math! Quarter 3 Planner
Chapter 6 3-Digit Addition and Subtraction | 15-16 Days |

BIG IDEA: Drawing on students' connections to their knowledge of basic facts, place value understanding, and strategies for 2-digit addition and subtraction can help build their understanding of 3-digit addition and subtraction. Students will often invent strategies for addition and subtraction. Previously used strategies might be inefficient (e.g., draw a picture, use tally marks). It might be tedious for students to draw tally marks to add 268 + 453 or to subtract 459-122. When faced with inefficient methods, students are likely to develop strategies that make sense to them.

The process of adding and subtracting 3-digit numbers is dependent on students recognizing that 10 is the point at which they need to regroup. Providing students with opportunities for discourse to share about the process and represent their strategies with concrete objects or pictures helps foster their understanding of 3-digit addition and subtraction, with a firm foundation in place value.
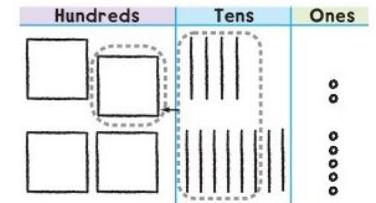
Students may not see the need to regroup in subtraction. Instead of regrouping, students often find the difference between the two numbers, regardless of their position in the problem. We should be discouraged from telling students, "You cannot subtract a bigger number from a smaller one." This explanation may cause confusion later when they encounter integers.

Students may use the standard algorithm as well as invented algorithms for performing three-digit addition and subtraction. Both methods can lead to success. However, regardless of the method, students need to attend to precision (MP6) to ensure that their calculations are accurate. Efficiency is also a consideration when choosing a method. An invented algorithm may lead to a correct response, but it may be after a longer than necessary process that presents many opportunities for students to make mistakes.

Adapted from Go Math: Teaching for Depth, Pg.277E.

Professional Development Videos:
Different Ways to Show a Number

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

ESSENTIAL QUESTION: What are some strategies for adding and subtracting 3-digit numbers?
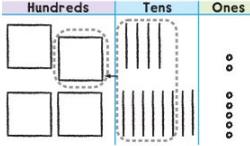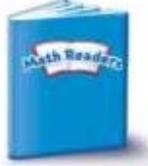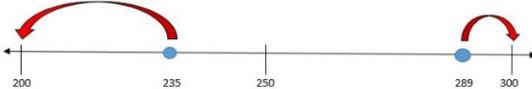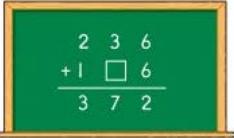**STANDARDS:** 2.NBT.7, 2.NBT.7.1 (CA)

ELD STANDARDS:

ELD.PI.2.1-Exchanging information/ideas via oral communication and conversations.
ELD.PI.2.3-Offering opinions and negotiating with/persuading others.
ELD.PI.2.5-Listening actively and asking/answering questions about what was heard.

ELD.PI.2.9- Expressing information and ideas in oral presentations.
ELD.PI.2.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.
ELD.PI.2.12-Selecting and applying varied and precise vocabulary.

Lesson	Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G2	Connections (ENGAGE prior knowledge)	Vocabulary	Academic Language Support	Journal
6.1 Draw to Represent 3-Digit Addition	2.NBT.7 Companion Pg. 109 MP 2 MP 4 MP 5 MP 6	How do you draw quick pictures to show adding 3-digit numbers?	In this lesson, students draw quick pictures to help them visualize the process of adding 3-digit numbers. Quick pictures let students represent pictorially what happens when two 3-digit numbers are added. By finding how many hundreds, tens, and ones there are in all with their quick pictures, student's understanding of place value concepts and addition are reinforced. This lays a foundation for adding 3-digit numbers before teaching students to use the standard algorithm. It's important that students still	Place Value Mat Place Value Mat to Hundreds Place Value Mat Spanish Base Ten Blocks	Have students use base-ten blocks to represent the number 357. Draw a quick picture for 357. Write 357 in expanded form.	Hundreds Tens Ones Regroup Sum Addends	**ELD Standards** ELD Standards ELA/ELD Framework ELPD Framework ELL Math Instruction Framework Integrating the ELD standards into Math	Draw quick pictures and write to tell how you would add 342 and 416.

				construct the numbers with manipulatives so that they gain understanding of the relationship between conceptual and pictorial representations. Students will find that, as with 2-digit numbers, quick pictures can also be used to check their answers. After students find a sum, they can confirm with their quick pictures that the numbers of hundreds, tens, and ones match their drawings.				**Access Strategies** Organizing Learning for Student Access to Challenging Content Student Engagement Strategies	
6.2	Break Apart 3-Digit Addends	2.NBT.7 Companion Pg. 109 MP 1 MP 3 MP 6	How do you break apart addends to add hundreds, tens, and then ones?	In this lesson, students build on their knowledge of place value as they express 3-digit addends as hundreds, tens, and ones. They use the idea of adding like values-ones to ones, tens to tens, and hundreds to hundreds-as they add in columns and determine the sum. To enhance students' thinking about what they are doing, you might ask them to first look at each exercise and tell what they know about the sum. What do the numbers in the hundreds place tell us about the sum? Do we need to regroup? This lesson focuses on a term called "partial sums" when written abstractly. Having the students write partial sums horizontally will help them see the place values. Students may then move to writing partial sums vertically. Example: 265 + 392 265 200 + 60 + 5 +392 300 + 90 + 2 500 + 150 + 7 = 657 265 +392 500 150 + 7 657	Place Value Mat Place Value Mat Spanish Place Value Mat to Hundreds Base Ten Blocks	Have students write the expanded form of the following two numbers: 248 and 481. Ask students what they notice about their expanded form sentences. How can they add these numbers together? You want students to recognize that by writing the expanded form of a number they can add by using place value.	Hundreds Tens Ones Regroup Sum Addends Partial sums	Problem Solving Steps and Approaches **Equitable Talk** Accountable Talk Simply Stated Equitable Talk Conversation Prompts Accountable Talk Posters Five Talk Moves Bookmark Effective Math Talks **Cooperative Learning** Cooperative Learning Role Cards Collaborative Learning Table Mats Seating Chart Suggestions **Vocabulary Strategy**	Draw quick pictures and write to explain how to break apart addends to find the sum of 324 + 231.
6.3	3-Digit Addition: Regroup Ones	2.NBT.7 Companion Pg. 109 MP 3 MP 4 MP 8	When do you regroup ones in addition?	The use of concrete, pictorial, and abstract representations in this lesson are all connected to the process of 3-digit addition. However, the focus of the abstract (in this case the standard algorithm is not a focus nor should be mastered by 2nd grade students). As stated in Ch. 4 and 5, the standard algorithm can be used as one strategy, but should not be the only strategy used.	Place Value Mat Place Value Mat Spanish Place Value Mat to Hundreds Base Ten Blocks	On the board, write this addition problem with a missing digit. 236 +1 6 372 Have partners find the missing digit in the problem. Students can use base-ten blocks to help them solve the problem.	Hundreds Tens Ones Regroup Sum Addends	**Model and Discuss** Build numbers using base ten and a place value mat.	Find the sum of 136 + 212. Explain why you did or did not regroup.

Vocabulary Strategy chart (in 6.2 strategies cell):

Word	
Picture	
Example	

6.4	3-Digit Addition: Regroup Tens	2.NBT.7 Companion Pg. 109 MP 2 MP 6 MP 8	When do you regroup tens in addition?	This lesson builds further understanding of 3-digit addition by focusing on regrouping tens. Some students may not have problems with regrouping for 2-digit addition, but when they try to regroup tens to hundreds in 3-digit addition, they may have difficulty transferring or extending the same concepts to the more complex 3-digit exercises. The extra column of digits may confuse them. Again, this lesson focuses on the standard algorithm. Continue to use manipulatives to build conceptual understanding of adding 3-digit numbers for those students who still need it and as another way to solve addition problems.	Place Value Mat Place Value Mat Spanish Place Value Mat to Hundreds Numeral Cards (0-9) Base Ten Blocks	Have partners shuffle the numeral cards and place them face down in a stack. Partner A chooses three cards and arranges them to form a 3-digit number. Together, they write an addition problem with two addends that have a sum equal to the 3-digit number. Make it challenging and state that their problem must have 1 column that must regroup (either the ones or tens).	Hundreds Tens Ones Regroup Sum Addends	**Literature Connection** View the lesson opener and then have students write stories involving 3 digit numbers.	Find the sum of 362 + 265. Explain why you did or did not regroup and how you solved it.
6.5	Addition: Regroup Ones and Tens	2.NBT.7 Companion Pg. 109 MP 3 MP 6 MP 8	How do you know when to regroup in addition?	This lesson is additional practice for students to understand when to or when not to regroup with 3-digit addition. Focus on continuously asking students the following questions: • What does it mean to think about if there are 10 or more ones? What does this tell you to do? • What does it mean to think about if there are 10 or more tens? What does this tell you to do?	Place Value Mat Place Value Mat Spanish Place Value Mat to Hundreds Base Ten Blocks	Write the following problems on the board vertically and ask students to state whether regrouping (in either the ones or tens column) will be necessary. 45 + 37 85 + 13 36 + 52 245 + 337 185 + 248 517 + 422	Hundreds Tens Ones Regroup Sum Addends		Find the sum of 275 + 249. Then draw quick pictures to check your work.
6.6	Estimation in 3-Digit Addition	2.NBT.7 Companion Pg. 109 2.NBT.7.1 MP 1 MP 2 MP 3 MP 8	How do you make reasonable estimates when solving problems?	In this lesson, students will use their knowledge of place value and the value of the hundreds in a 3-digit number to help them estimate sums of 3-digit numbers. They will develop their mental math skill of adding multiples of hundreds, such as 600 + 200. When students can recognize that they can use estimation to help them find if their actual answers are reasonable, they can perform computations and at the same time make sense of the process and the reasonableness of their solutions. Use a number line to help students visualize estimation. Students should learn that the purpose of estimating is another way for them to check their sums. An estimate means that the sum should be close to that number. • 235 is going to round to 200. • 289 is going to round to 300.	Place Value Mat to Hundreds Place Value Mat Spanish Base Ten Blocks	Write the following numbers on the board, have students give you numbers that would round to that number. 400 (any number from 351-449) 200 (any number from 151-249)	Hundreds Tens Ones Regroup Sum Addends estimate		Describe how you would estimate the sum of 567 and 213. Draw quick pictures to show the estimates of each addend and the sum.

6.7	Problem Solving: 3-Digit Subtraction	2.NBT.7 Companion Pg. 109 MP 1 MP 2 MP 4 MP 6	How can making a model help when solving subtraction problems?	Students may ask why they are being encouraged to use manipulatives and quick pictures to solve the problems. Explain that manipulatives are tools for showing the math they are doing. Manipulatives can help them think about the reasons for the way they use the numbers. For some students, the concrete experience with base-ten blocks helps them to build an understanding of what the algorithm represents (in 4th grade). Quick pictures help students show their thinking. Pictures and sketches can help them communicate their thinking, so they can share their answers and strategies. It can also help them work through problems that they are finding difficult to solve.	Place Value Mat to Hundreds Place Value Mat Spanish Base-Ten blocks	Ask student how many tens are in the number 50? How many ones? If you take 2 tens away, how many are you left with? Why? What happens? (Use base ten rods if necessary) Repeat. How many hundreds are in the number 380? How many tens? How many ones? If you take 2 hundreds away, what are you left with? Why/explain. (Use base ten blocks as needed)	Hundreds Tens Ones Regroup Difference	**Spinner Game** Have students spin a three-digit number that represents the sum. Then have them come up with two numbers that when added together will equal the sum.	Draw a quick picture to show how to subtract 314 from 546.
6.8	3-Digit Subtraction: Regroup Tens	2.NBT.7 Companion Pg. 109 MP 1 MP 6 MP 8	When do you regroup tens in subtraction?	Showing the students, the algorithm is acceptable. However, it is important to teach not just a series of procedural steps, but to emphasize the conceptual foundation of the skill. Make sure that students see the connection between the hands-on models (base-ten blocks), the quick pictures, and the algorithm. When students make mistakes such as regrouping when it is not necessary, or subtracting the top number from the lower number, it is a signal that they may not have made the conceptual connection. The students can write the problem like the algorithm, but encourage them to use partial sums, quick pictures, compensation, or other strategies emphasized in Chapters 4 and 5 to build understanding of adding and subtracting 3-digit numbers.	Place Value Mat to Hundreds Place Value Mat Spanish Base-Ten blocks Quick pictures	On the board, write these subtraction problems with missing digits: 257 - 11_ = 3_2 - 145= 53_ - 128 = Have partners solve for the missing digit in each problem. Partners can use base-ten blocks or quick pictures to help find each missing digit.	Hundreds Tens Ones Regroup Difference	**Missing Digit Game** Have students make up problems and then cover one of the digits. Have pairs figure out what the missing digit is.	There are 235 whistles and 42 bells in the store. Ryan counts 128 whistles on the shelf. How many whistles are not on the shelf?
6.9	3-Digit Subtraction: Regroup Hundreds	2.NBT.7 Companion Pg. 109 MP 1 MP 3 MP 6 MP 8	When do you regroup hundreds in subtraction?	Students should be familiar with subtraction. In this lesson, they will be introduced to regrouping in the hundreds place. Help students understand the concept of regrouping. You can do this by asking them the following questions: "Where do you begin to subtract?", "What do you need to know when subtracting the ones?", "What do you need to know when subtracting the tens?", "What do you do if you need more tens?" "When/Why do I need to regroup?" "How do I regroup?" "What am I regrouping?"	Place Value Mat to Hundreds Place Value Mat Spanish Base-Ten blocks Quick Pictures	Give students an opportunity to use reasoning skills as they use the digits: 1, 2, 3, 4, 5, 6 to write 3-digit subtraction problems. Students should create a different problem that will meet each of the criteria below. Explain to students that many correct answers are possible. Criteria: 1. Requires no regrouping to subtract. 2. Requires regrouping 1 ten as 10 ones to subtract. 3. Requires regrouping 1 hundred as 10 tens to subtract. (You may only get to 1 or 2 criteria depending on timing.)	Hundreds Tens Ones Regroup Difference	**Activities Hundreds** Children complete blue Activity Card 16 by modeling addition of 100s.	Write the subtraction problem for 838 – 462 and find the difference. Use a quick picture to explain and justify your answer.

6.10	Subtraction: Regroup Hundreds and Tens	2.NBT.7 Companion Pg. 109 MP 3 MP 6 MP 7 MP 8	How do you know when to regroup in subtraction?	This lesson focuses on the standard algorithm. Spend this time continuing to build conceptual understanding of adding and subtracting 3-digit numbers using strategies and quick pictures.	Place Value Mat to Hundreds Place Value Mat Spanish Base-Ten blocks Quick pictures	Have students solve the following riddles: 1. I am a 3-digit number. If you subtract 48 from me, you will get 295. 2. I am a 3-digit number. If you subtract me from 600, you will get 344. What number am I?	Hundreds Tens Ones Regroup Difference	Activities Regrouping Ones Children complete orange Activity Card 16 by modeling 3-digit addition with regrouping. Activities Twice Is Nice	Draw quick pictures to subtract 546 from 735. Solve this problem another way using a different strategy.
6.11	Regrouping with Zeros	2.NBT.7 Companion Pg. 109 MP 1 MP 6 MP 8	How do you regroup when there are zeros in the number you start with?	This lesson focuses on regrouping with zeros using the algorithm, however, students need to use base-ten blocks to build conceptual understanding of how regrouping with zeros works. Again, focus on the concept of addition and subtraction with the use of place value with strategies and manipulatives.	Place Value Mat to Hundreds Place Value Mat Spanish Base-Ten blocks	Solve. Paul and Kim each build a tower out of blocks. Paul uses 406 blocks to build his tower. Kim uses 127 fewer blocks than Paul to build her tower. How many blocks does Kim use?	Hundreds Tens Ones Regroup Difference	Children complete blue Activity Card 19 by modeling 3-digit subtraction and regrouping. Activities Zero Gravity	Write the subtraction problem 604-357. Describe how you would subtract to find the difference using a strategy or pictures.
6.12	Estimation in 3-Digit Subtraction	2.NBT.7 Companion Pg. 109 2.NBT.7.1 MP 2 MP 6 MP 8	How do you make reasonable estimates when solving problems?	In this lesson, students will use a number line to find the nearest hundred for a 3-digit number to help them estimate the difference between 3-digit numbers. They will develop their mental math skills of subtracting multiples of hundreds, such as 700 – 300. When students can use rounding to replace an actual number with numbers that are close, they can obtain more precise estimates than with using simply the hundreds digit and front-end estimation. They will have additional tools to use to find numbers to use for mental computations. Students can see the value in using estimates to check the reasonableness of their solutions, as well as in addition.	Number Line example Students use a laminated sentence strip to solve. Number Line Template with Examples	At the store, there are 388 apples and 124 plums. Estimate how many more apples than plums are at the store.	Hundreds Tens Ones Regroup Difference estimate	Children complete orange Activity Card 19 by modeling 3-digit subtraction using workmats.	Describe, using a number line, how you would find an estimate of the difference between 834 and 389.

Assessments:
Chapter 6 Test
Chapter 6 Performance Task: On the Subway
Common Assignment Critical Area Performance Task The Reading Challenge

BIG IDEA: Counting Money: Money is formally introduced in 2nd grade, which is a change from the CST standards. Thus, students will need numerous experiences with coin recognition and values of coins before using coins to solve problems. They need to identify, count, recognize, and use coins (penny, nickel, dime, and quarter) and bills ($1, $5, $10, $20, $50, $100) in and out of context. Students should have opportunities to make equivalent amounts using both coins and bills. Note that students in second grade do not express money amounts using decimal points, instead they can use the cent sign (¢). Just as students learn that a number may be represented in different ways and still be the same amount, students can apply this understanding to money. For example, 25 cents could be represented as a quarter, two dimes and a nickel, or 25 pennies, all of which have the same value. Building the concept of equivalent worth takes time, and students will need numerous opportunities to create and count different sets of coins to recognize the "purchasing power" of coins. Students may add or subtract coins under a dollar and use the strategies from 2.NBT.5 to explain and justify their answers. In this case, teachers can give "making change" problems to their students. Finally, students need to solve problems dealing with coins, including making change, and be able to justify and defend their results.

Telling Time: By now students know that telling time is an essential skill in their lives. Telling time allows them to relate the duration of an event in their daily routines to reading a clock. These authentic applications provide a purpose for telling time and monitoring the duration of an event. Students need to know the following key concepts when interpreting the clock: With the short hand, we tell the hour and approximate how close we are to the next one by where it is pointing, and with the long hand, we focus on the distance traveled to tell the duration in minutes since the last hour, and how long until the next hour. In first grade, students learn to tell and write time in hours and half-hours using analog and digital clocks. In second grade, students tell and write time from analog and digital clocks to the *nearest five minutes*, using a.m. and p.m. They also know relationships of time (minutes in an hour; days in a month; weeks in a year; etc). In third grade, students will tell and write time to the *nearest minute* and measure time intervals in minutes.

Adapted from Go Math: Teaching for Depth, Pg. 341E.

ESSENTIAL QUESTION: How do you use the values of coins and bills to find the total value of a group of money? How do you read times shown on analog and digital clocks?
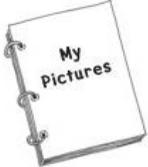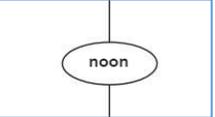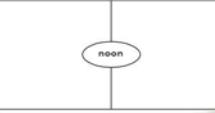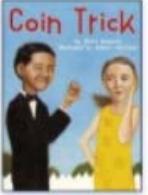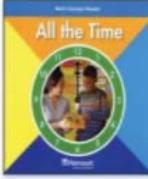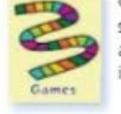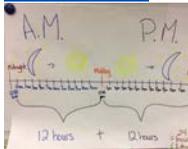**STANDARDS:** 2.MD.7, 2.MD.8

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ELD.PI.2.9- Expressing information and ideas in oral presentations.
ELD.PI.2.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.
ELD.PI.2.12-Selecting and applying varied and precise vocabulary.

Lesson	Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G2	Connections (ENGAGE prior knowledge)	Vocabulary	Academic Language Support	Journal
7.1 Dimes, Nickels, and Pennies	2.MD.8 Companion Pg. 152 MP 1 MP 4 MP 6 MP 7	How do you find the total value of a group of dimes, nickels, and pennies?	Students develop a better understanding of concepts when the concepts are developed with real-world activities. There are many activities students can relate to when learning about money. In the first two lessons of this chapter, where coins are introduced, give students opportunities to discuss the uses of coins in their daily lives.	Piggy Bank Use this as a template for students to display their answers. Money Mat Math Word Wall	Give each student a set of coins with a mix of dimes, nickels, and pennies. Have them sort them into groups of same coins and count how much they have in each group. This helps students practice identifying the various coins and their value.	Dime Nickel Penny Cent sign	**Critical Area** Making a Kite pg. 333-336.	Draw 3 dimes, 1 nickel, and 2 pennies. Describe how to count on to find the total value of this group of coins. Write a matching number sentence.

7.2	Quarters	2.MD.8 Companion Pg. 152 MP 1 MP 6 MP 7 MP 8	How do you find the total value of a group of coins?	In the previous lesson and in this lesson, groups of coins are pictured in order: coins of greatest value to coins of least value. This is so that, with repeated use, students learn a counting sequence that remains consistent. Even though it is early in the development of this skill, students can begin counting by twenty-fives for quarters, by tens for dimes, by fives for nickels, and by ones for pennies. -Coins in this order can be counted by their values quickly. -Counting from greater values to lesser values means that the difference in value when counting from one coin to the next remains familiar and students use counting patterns that they have experience with.	Piggy Bank Money Mat Math Word Wall	Teacher: explain to students that you'd like to give 25¢ to each of your students, but you don't have enough quarters for your class of 22 students. What are other ways to give each student 25¢? Ask for student responses.	Dime Nickel Penny Cent sign Quarter	**Math Project Story Book** **Flying a Kite** My Pictures **Vocabulary Builder**	Draw 1 quarter, 1 dime, 2 nickels, and 4 pennies. Describe how to count to find the total value of this group of coins. Write a matching number sentence.
7.3	Count Collections	2.MD.8 Companion Pg. 152 MP 3 MP 4 MP 6 MP 8	How do you order coins to help find the total value of a group of coins?	Counting to find the total value of a group of coins may be difficult for some students because the values of coins do not have an easy pattern to follow, unlike the base-ten number system. Our base-ten number system has the reliable, consistent pattern of place-value positions being 10 times the size of the next smaller place-value position. Also, the physical sizes of coins are not proportionally correct. There is no reasoning or patterning involved; students must simply memorize the value of the coins. To help student remember the values of the coins, you may want to make cards for a matching game-cards with a picture or a coin and cards with a value, such as 10¢, on them.	Piggy Bank Money Bags Money Mat Math Word Wall	Have students randomly grab 5-7 coins out of a bag, cup, etc. Have them count the coins and discuss as a class what was the easiest way to count the coins accurately. You can use the Money Bags template to help students organize their coins and representations.	Dime Nickel Penny Cent sign Quarter	Graphic Organizer noon **Model and Discuss** Play Coins	Draw 2 quarters, 3 dimes, 1 nickel, and 2 pennies. Describe how to order and count to find the total value of the coins.
7.4	Show Amounts in Two Ways	2.MD.8 Companion Pg. 152 MP 1 MP 4 MP 6 MP 8	How do you choose coins to show a money amount in different ways?	In this lesson, there are multiple decisions for students to make as they work through the exercises. In previous lessons, students found the total value of a group of coins by counting from the coins of greatest value to the coins of least value. As students choose which coins to use, they will find that if they start with coins of greater value, the task will be quicker and more efficient. Students will also use the concept of equivalence among coins. Once they have shown a money amount with one group of coins, they can then make equivalent trades, such as 2 nickels for 1 dime or 2 quarters for 5 dimes. Through this process, they have not changed the total value of the group of coins, but have used these 'trades' to find a different way to show the same total amount.	Piggy Bank Money Mat	You want to buy a teddy bear at the store for 77¢. Show two different ways you can pay for the teddy bear.	Dime Nickel Penny Cent sign Quarter	Coin Trick noon Analog Clock **Literature Connection**	Draw coins in two ways to show 57¢. Describe how you chose the coins for each way.
7.5	One Dollar	2.MD.8 Companion Pg. 152 MP 4	How can you show the value of one dollar with coins?	Some students may not understand that a one-dollar bill has a value of 100¢. Show students a penny and ask them to name the coin. Ask: What is the value of 1 penny? Display a stack of 10 pennies. Ask: What is the value of 10 pennies? Display 10 stacks of 10	Money Mat	Show students a one-dollar bill. Ask: Can anyone tell me what I am holding? What is it used for? How much is it worth? Could I buy a toy	Dollar Dollar sign Dime Nickel Penny		Draw coins to show one way to make $1.00. Show another way to make a dollar using

		MP 6 MP 7		pennies. Have students count by tens to find the value. Explain that a one-dollar bill has the same value as 10 stacks of 10 pennies, or 100 pennies. Also, to show coherence within your grade level, have students compare this knowledge with their base-ten blocks. (1 penny = 1 unit, 1 dime=1 "stick"/"rod", 1 dollar = 1 hundred block) After students explore with the Connections activity, (two columns to the right), have them do the following task: You have 3 friends who each want a dollar for their snack bar at school. With the coins in your bag, can you give each friend a dollar? (Make premade baggies prior to this task for either groups or partners. In each bag put the following coins: 6 quarters, 8 dimes, 10 nickels, and 20 pennies.)	[hundred chart 1–100]	that costs $2 if this is all I have? Why/Why not?	Cent sign Quarter	Literature Coin Trick *Coin Trick* Literature All the Time *All the Time*	only quarters and nickels.
7.6	Amounts Greater Than $1	2.MD.8 Companion Pg. 152 MP 2 MP 4 MP 6 MP 7	How do you show money amounts greater than one dollar?	The standard does not call for 2nd graders to use the decimal point when writing money. However, this lesson introduces the decimal point. Instead of focusing on the decimal point to show students how to represent amounts greater than $1, **have students write their answers as follows: $1 and 48¢**. Students will learn in 4th grade that the word *and* will be replaced by the decimal point. Have students practice reading money correctly as well. $1.67 is read "one dollar and 67 cents". Understanding how money amounts are read will prepare students for learning about decimals. It will also help them better understand prices in real-life situations.	Paper Money [bills] Paper Coins [coins]	Ask: Have you ever bought anything that costs more than a dollar? What are some things that you could buy for more than a dollar? What are some things that you could buy that cost $1 or less? Ask: How many quarters are there in $1? How many dimes? How many nickels? How many pennies?	Dollar Dollar sign Dime Nickel Penny Cent sign Quarter	Literature **Time to Go Shopping** Children read about counting coins to buy all the items on a shopping list. Literature	Write one way to show $1 and 67¢. What would be the fewest amount of coins that could be used?
7.7	Problem Solving: Money	2.MD.8 Companion Pg. 152 MP 1 MP 4 MP 6 MP 7	How does acting it out help when solving problems about money?	In this lesson, students use play coins and bills to represent and act out problems that involve money. These problems have connections to real-life experiences for students. In the previous lesson, students found the total values for collections of coins and bills that were pictured in the lesson. They also learned how to write money amounts that were greater than $1.00 but less than $2.00. The problems in this lesson are an extension of these skills: Students read a description of a collection of coins and bills, interpret that text to make a model with play coins and bills, and then record the total value. Some of the total values in the problems involve amounts greater than $2.00.	Paper Money Paper Coins	Ask: What ways could we show $2? With dollar bills, quarters, dimes, pennies. What ways could we show $5? With dollar bills, quarters, dimes, pennies.	Dollar Dollar sign Dime Nickel Penny Cent sign Quarter	**Is It Time Yet?** Children read about how long it takes to complete various activities. Games **Tic Tac Total** Children practice showing the same amount of money in another way. Games	Write or draw to explain how you would find the total value of two $1 bills and 3 quarters.
7.8	Time to the Hour and Half Hour	2.MD.7 Companion Pg. 151	How do you tell time to the hour and half hour on a clock?	In this lesson, students use the position of the hour hand and minute hand to tell time on an analog clock. The focus for this lesson is on time to the hour	Clock Resources Put these resources in a sheet protector.	Show students a clock. Review the parts of an analog clock. Where is the hour hand? Where is the minute hand? What do the	Minutes Half past Hour hand Minute hand		Draw on a clock to show the time as 2:30. Describe how you decided where

|									
		MP 1 MP 5 MP 6 MP 8		and half hour, which is a review from 1st grade- 1.MD.3. Reading an analog clock requires students to understand that the numbers are arranged in counting order. You can have students create a clock using base-ten pieces cut into strips of 5. Students can learn how to tell time by skip-counting by 5s (2.NBT.2).	Students can practice drawing and writing various times.	numbers represent? What do the lines in between the numbers mean? Etc…		**Games Just in Time!** Children practice telling time to the hour and to the half hour without the minute hand.	the hour hand and minute hand should point.
7.9	Time to 5 Minutes	2.MD.7 Companion Pg. 151 MP 3 MP 4 MP 6 MP 8	How do you tell and show time to five minutes?	Students learn how to tell time to five minutes. Students are probably familiar with the duration of five minutes, but they may not have an understanding of the duration of an hour or a half hour. To help students understand 5 minutes, 30 minutes, and 1 hour, make notes throughout the day to give students activities to work on in ELA and/or Math and tell them they will have 5, 30, or 60 minutes.	Clock Resources	State the following times orally and have students use the Clock Resources to draw that time on the analog clock and write it digitally: 7:30, 5:30, 2:00, 1:00, 6:30, 12:00	Minutes Half past Hour hand Minute hand	**Activities Mike's Kites** Children complete blue Activity Card 6 by calculating the value of a collection of coins.	Draw on a clock to show the time 3:50. Describe how you decided where the hour hand and minute hand should point.
7.10	Practice Telling Time	2.MD.7 Companion Pg. 151 MP 1 MP 6 MP 8	What are the different ways you can read the time on a clock?	In this lesson, students say, show, and write the same time in different ways. This practice reinforces student understanding of how to read and tell time. Students determine the correct position of the minute hand and then draw it on an analog clock for each of the times that are described in different ways. This helps students connect descriptions of time to the positions of the clock hands. It also helps them develop their understanding of how the spoken and written times are shown on an analog clock. By writing the time on a digital clock, student understanding of how the hour and minute hands represent a specific time is reinforced.	Clock Resources	As a class have students make a list of 5 things they do throughout the school day. On chart paper, have students draw the analog time and write the digital time of each activity.	Minutes Half past Hour hand Minute hand	**Activities Piggly Wiggly** Children complete orange Activity Card 6 by comparing the values of different coins.	Write the time 8:30. Then write this time in two other ways, using words.
7.11	A.M. and P.M.	2.MD.7 Companion Pg. 151 MP 2 MP 3 MP 6 MP 7	How do you use A.M. and P.M. to describe times?	In this lesson, students describe times using A.M. and P.M. Students may wonder what these words stand for and why it is important to use them. These abbreviations stand for *ante meridiem* (AM), which means "before noon, "and *post meridiem* (PM), which means "after noon." Explain that there are two of each time in a single day. For example, there are two 8 o'clocks each day: one in the morning and one at night. Tell students that if someone says, "We can read together at 8:00" you would need to know whether that time was 8:00 in the morning or in the evening. So, the time needs to be described with AM or PM.	AM/PM Activity AM/PM poster Clock Resources	Discuss with your class the difference between night and day. Inform students that this is represented with A.M. and P.M. in relation to time. Have students complete the AM/PM Activity	Minutes Half past Hour hand Minute hand Noon Midnight AM PM		List two activities that you do in the morning and two activities that you do in the afternoon. Write times for these activities, using A.M. and P.M.

| 7.12 | Units of Time | 2.MD.7 Companion Pg. 151

 MP 2
 MP 3
 MP 6
 MP 7 | How are different units of time related? | In this lesson, students will identify units of time, including day, week, month, and year. They will learn about the relationship between the different units of time. Month calendars will be used to help students visualize the relationships, including the number of days in given months, the number of weeks and days in given months, the number of days in a week, and the number of weeks in a year. Students will advance to comparing amounts of time that are given in different units.
 Help students by presenting real-world problems involving the relationship between different units of time, such as: Ben has a kitten that is 7 days old. Which unit of time is the same as 7 days? We will perform a class play in 30 days. Which unit of time is about the same as 30 days? | Units of Time Poster | Ask students ways in which we represent time. Ex. a clock, a stopwatch, a calendar, seasons, etc…

 Chart the students' responses.

 Ask students the following:
 If there are 7 days in 1 week, how many days are in 2 weeks?

 If there are 4 weeks in a month, how many weeks are in two months?

 If there are 12 months in 1 year, how many months are in 2 years? | Minutes
 Half past
 Hour hand
 Minute hand
 Noon
 Midnight
 AM
 PM
 Days
 Months
 Year | **Activities**
 Blowing Bubbles

 Children complete purple Activity Card 6 by determining if the amount of money is sufficient to purchase given objects.

 Activities
 Time for School

 Children complete orange Activity Card 8 by reading and showing time on an analog clock.

 Activities
 Tracking Time

 Children complete blue Activity Card 8 by determining elapsed time. | Have students write the relationships they know between days, weeks, months, and years. |

Assessment:
Chapter 7 Test
Chapter 7 Performance Task: The Mall

BIG IDEA: Measurement is the most commonly used mathematics application, particularly in the study of science. Students need to do the following things in order to build understanding of measuring: 1) Know what can be measured or what are measurable attributes, such as length and time; 2) Use non-standard units, but understand why standards units must be used; 3) Choose the appropriate unit, tool, and technique to measure the attribute; 4) Estimate and then compare the estimate with the actual measurement; 5) Understand that measuring on object is an iterative and counting process; 6) Know that choosing a unit, placing units repeatedly with no gaps or overlaps to measure the object, and counting how many units it takes, results in the measurement of the object in that unit; 7) Connect measurement with number and operations; and 8) compare and order objects according to measurable attributes.

Addressing the following ideas about measurement will help students build their understanding of measuring length: 1) Choosing an appropriate tool will make the measure meaningful; 2) Often rulers do not show a zero, but that is the beginning and most important number in measuring. Students should look for the mark that represents the zero; and 3) Aligning the left edge of the object with the zero mark on the ruler is perhaps the most efficient way to measure length.

When dealing with measurement, students must read and interpret each situation: What is the problem, what is the attribute, what unit should be used, and which tool is appropriate? In this chapter, by following the steps to build understanding in measurement, these questions can be answered by students who know how to make sense of problems and persevere in solving them (MP 1).
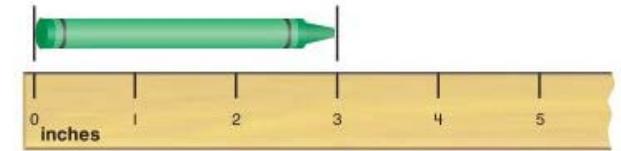
Adapted from Go Math: Teaching for Depth, Pg. 397E.

ESSENTIAL QUESTION: What are some of the methods and tools that can be used to estimate and measure length?
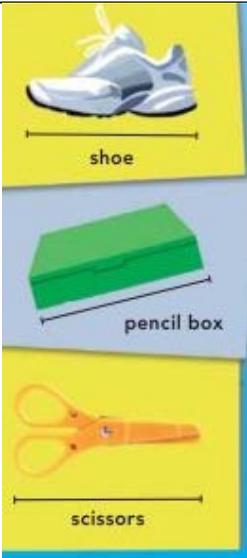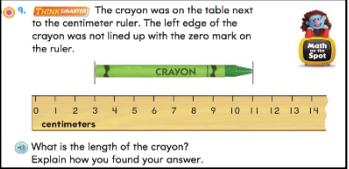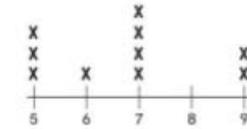
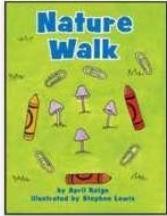**STANDARDS:** 2.MD.1, 2.MD.2, 2.MD.3, 2.MD.5, 2.MD.6, 2.MD.9
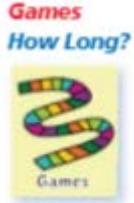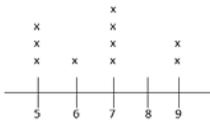
ELD STANDARDS:

ELD.PI.2.1-Exchanging information/ideas via oral communication and conversations.

ELD.PI.2.3-Offering opinions and negotiating with/persuading others.

ELD.PI.2.5-Listening actively and asking/answering questions about what was heard.

ELD.PI.2.9- Expressing information and ideas in oral presentations.

ELD.PI.2.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.

ELD.PI.2.12-Selecting and applying varied and precise vocabulary.

Lesson	Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G2	Connections (ENGAGE prior knowledge)	Vocabulary	Academic Language Support	Journal
8.1 Measure with Inch Models	2.MD.1 Companion Pg. 144 MP 2 MP 5 MP 6 MP 8	How can you use inch models to measure length?	In this lesson, students use a nonstandard unit (color tile) to measure lengths of objects. Using color tiles as a measurement tool requires that students place a row of tiles along the length of the object and determine the total number of tiles. To determine an accurate measurement, students must understand the importance of aligning the left edge of the first tile with the left end of the object to be measured, and then placing each tile so that there are no gaps or overlaps.	1-inch foam color squares	Have students measure their pencils using color tiles and use this to discuss the following. Ask students: When measuring an object where do you start? How do you know? Where do you stop? How do you know? If an object is more than 3 but less than 4 how do you describe its length? What would you do? (Show an example item to help with visualization.)	Inch Length Height	**Vocabulary Strategy** **Visualize It:**	Measure a ten rod. Explain how you found out about how many inches long it is.
8.2 Make and Use a Ruler	2.MD.1 Companion Pg. 144 MP 3 MP 5	Why is using a ruler similar to using a row of color tiles to measure length?	Students may wonder why they are making a ruler when they could use one of the rulers in the classroom. By building a ruler, students deepen the connection between the measurement unit (inch tiles) they have been using and the spaces between the marks on the	Follow the steps in Making a Ruler to encourage student conceptual understanding and discourse between	Have students measure the length of their desks using color tiles and discuss the following: Ask students: Why would we measure an object? Why would this be helpful?	Inch Length Height	**Use real objects:**	Measure a crayon with color tiles and a ruler. Would you rather use your color tiles or a ruler to measure to this

		MP 6		ruler. This builds concrete understanding of the abstract tool. As students use alternating colors to shade each inch, it helps them visualize the length of an inch. Students should be aware that when they are measuring an object in inches, they are using a unit of measure. A unit is something that does not change as it is used over and over. Explain the importance of writing the unit when expressing length. Merely writing a number such as 5, has no meaning as a length if a unit label is not shown.	nonstandard and standards unit of measure. Black construction paper and 1-inch paper squares	What do you know about measuring in inches? How is this similar to using color tiles? Have you ever used a ruler? (show students a wooden or plastic ruler) What have you measured with a ruler? Why? How is this similar to using the color tiles?			object? Explain your choice.
8.3	Estimate Lengths in Inches	2.MD.3 Companion Pg. 146 MP 1 MP 5 MP 6 MP 7	How do you estimate the lengths of objects in inches?	Knowing how to estimate length is a useful skill to have even though tools for measurement exist. Explain to students that often measuring tools are not available when we need them. For example, if you want to buy a bulletin board to hang in the classroom and you forgot to take a measuring tape to the store, you might look at the bulletin boards for sale and estimate to choose the size you need. Engage students in a discussion about using estimation in their everyday lives-not just estimating linear measurement-to help them understand the concept of estimation. For example, ask them to estimate the number of pencils needed in the classroom, the number of books on a shelf, the length of your desk, and so forth. In this lesson, students are given a pictorial 1-inch model. They make estimates using this 1-inch model by mentally partitioning the lengths of the strings.	Rulers Various objects around the classroom (to apply the skills to real-world application) Suggestion: have students bring 3 objects from home to measure.	Ask student what they would use to measure the length of the whiteboard. Have pairs of student's measure using their paper strip rulers. Ask pairs to share their results and explanations. *Surface the term estimation and why we would use estimating when measuring.	Inch Length Height Estimate About	**Model and Discuss** Use color tiles to measure length.	Explain how you could estimate the length of a book.
8.4	Measure with an Inch Ruler	2.MD.1 Companion Pg. 144 MP 2 MP 5 MP 6 MP 8	How do you use an inch ruler to measure lengths?	It is important that students understand that a ruler is divided into units that remain constant. Continue to emphasize that it is the spaces on a ruler that are being counted when measuring length. Reinforce this idea with the following activity. First, have students use inch rulers to measure the length of a pencil. Next, have students measure the length of the pencil again, but have them line up the *right* edge of the pencil with the last mark on the right end of the ruler. Finally, have students measure the length of the pencil once more, lining up the pencil with any (whole inch) mark on the ruler they choose. Students should count the inch spaces in each measurement and will see that the three measurements are the same. This visual is from Chapter 9, but the concept applies to this lesson-just a different measurement (cm. versus in.)	Rulers Various objects around the classroom (to apply the skills to real-world application) Suggestion: have students bring 3 objects from home to measure.	Have students complete the activity described in the math content and strategies column. Option 2: Advanced Learners Page 415. **Advanced Learners** Visual / Kinesthetic Individual / Partners Materials pieces of yarn, inch rulers (rulers that include half-inch marks) • Invite children to discuss what they know about one half. • Have partners look at their rulers and describe how the numbers are organized. Tell children that a ruler has marks for lengths that are between inches. Note that the numbered lines on a ruler marking inches are longest and the lines marking half inches are next longest. Ask children to locate the marks for $\frac{1}{2}$ inch, 1 inch, $1\frac{1}{2}$ inches, 2 inches, and $2\frac{1}{2}$ inches. • Discuss how to measure lengths to the nearest half inch. Provide children with pieces of yarn. Have partners measure and record the length of each piece of yarn to the nearest half inch.	Inch Length Height Estimate About	Make paper rulers with tiles. Use a number line to add and subtract. Line Plot	Compare the ruler you made to an inch ruler. How are they alike and how are they different?

8.5	Problem Solving: Add and Subtract in Inches	2.MD.5 Companion Pg. 148 2.MD.6 Companion Pg. 149 MP 1 MP 2 MP 4 MP 6	How can drawing a diagram help when solving problems about length?	Drawing a diagram is a way of representing information in a problem situation. A diagram can help students understand what is happening in the problem situation. They can see what information they have, what information they still need, and how all the pieces of information are related. In this lesson, students draw a diagram to represent the problem. They analyze their drawings to help them see whether the problem asks them to find an unknown sum or an unknown difference. They can use this information from the drawing to write a number sentence and solve the problem. As in earlier chapters, students use a symbol in each number sentence to represent the unknown amount. Using the part-part-total diagram and a number line will be most helpful.	Number Line Template Yarn, Rulers Part-Part-Total template	Provide students with two strings each of a different length. Have them compare the lengths of the two strings. Which string is longer? How much longer? What might we need to tell how much longer one is than another? Why would we need to know this?	Inch Length Number sentence Unknown	**Literature Connection** **Literature** Nature Walk **Activities** **Super Subs** Children complete orange Activity Card 17 by comparing the lengths of everyday objects using paper clips. **Activities** **Batter Up!** Children complete blue Activity Card 17 by comparing the lengths of everyday objects using base-ten blocks.	Draw a diagram to find the total length for two strings, 15 inches long and 7 inches long.
8.6	Measure in Inches and Feet	2.MD.2 Companion Pg. 145 MP 2 MP 5 MP 6	Why is measuring in feet different from measuring in inches?	In this lesson, students measure the lengths of objects in inches and in feet. Explain that a foot is another common unit of measure and that the word *feet* is used when describing more than one foot. When measuring a length greater than 12 inches using a 12-in ruler, students will need to determine how they will keep track of the groups of 12 inches for that length. Rather than telling students how to do this, allow small groups to work together and decide on their own methods. For example, some groups may add several 12's together for successive ruler lengths of the object. Some groups may count on by inches after the initial ruler length of the object. Ask student to discuss their methods as a class. Students will benefit from explaining and justifying their own methods, as well as hearing other methods and explanations. You may have students explore what is similar and different between a 12-in ruler and a yardstick. Focus students' findings to how many rulers does it take to match the length of a yardstick.	Rulers Ball of yarn	In a clear area of the classroom, make a short line on the floor with masking tape. Demonstrate throwing a ball of yarn (or paper) by standing with your heels on the line and gently throwing the ball backward over your shoulder. Ask a child to mark where the ball lands. Have pairs of students work together to measure the distance (with a 12inch ruler) from the starting line to the place where the ball landed. Share out how each pair measured the distance the yarn went using their rulers.	Inches Feet		Would you measure the length of a jump rope in inches or in feet? Explain your choice.
8.7	Estimate Lengths in Feet	2.MD.3 Companion Pg. 146 MP 1 MP 2 MP 6 MP 7	How do you estimate the lengths of objects in feet?	The ability to estimate lengths is an important real-world skill to have, especially if measuring tools are not available. In Lesson 8.3, students used the unit of 1 inch to estimate lengths. In this lesson, they will estimate lengths in feet. Talk with students about how measuring to find the actual lengths of objects is different from estimating lengths of objects. There are real-life situations in which estimates are needed, and there are also real-life situations in which actual measurements are needed. For some students, they may use a mental picture of a measurement unit and then mentally partition a length to make an estimate. Besides thinking of an inch ruler as a	Rulers	Ask students: How would you measure an objects length in feet? An example for this can be to ask students to figure out how to measure the length of the classroom door in feet. Refer back to lesson 8.3 measuring objects in inches and estimation. How would we estimate an object using feet like when we used inches? If you measured an object that is between 6 and 7 feet, how would	Inches Feet Estimate About		Measure a classroom table with a ruler. Explain how you would estimate the length in feet.

				referent, they could think about the length of the long side of a sheet of notebook paper as being close to a 1-foot length. Then they can think about how many sheets set end to end would match the length of the everyday object that they are estimating.		you describe the length of your measurement?		Games How Long? Children practice predicting and measuring length.	
8.8	Choose a Tool	2.MD.1 Companion Pg. 144 MP 3 MP 5 MP 6 MP 8	How do you choose a measuring tool to use when measuring lengths?	Choosing the appropriate measuring tool is an important skill students develop as they explore and measure the attributes of objects. In this lesson, students learn about different tools used to measure lengths of objects and distances in customary units. In later grades, students will also learn about other measurement units and the tools used to measure them. • To choose an appropriate measuring tool, students need an understanding of length and how to manipulate different tools when measuring lengths or distances. • Students need to learn through hands-on experience that an inch ruler is the more appropriate tool to use to measure small objects; yardsticks and measuring tapes are more appropriate for larger objects. • During the lesson, encourage students to share ideas with each other about how to choose an appropriate measuring tool.	12-inch ruler Yardstick Measuring tape	<table><tr><td>Object</td><td>Tool</td><td>Measure-ment</td></tr><tr><td></td><td></td><td></td></tr></table> Have students copy this table in their journals. Have students choose classroom objects to measure. Then, for each tool, have students name one playground object for which that tool would be the best tool to use to measure the object's length and explain why.	Tool, yardstick, measuring tape, ruler		Describe which tool you would use to measure the length of the rug. Explain how you would do this.
8.9	Display Measure-ment Data	2.MD.9 Companion Pg. 154 MP 4 MP 5 MP 6	How can a line plot be used to show measurement data?	In this lesson, students collect data by measuring the lengths of a group of like objects and then making a line plot to display the data. Pictorial representations and graphs can be a useful way to compare multiple pieces of information Line plots are beneficial to order and compare the data for different measurements or other types of information. This lesson allows students to demonstrate their understanding of measurement and data. Students learn about the different parts of a line plot, including a title, labels, and symbols for representing the data.	Rulers Line Plot Template	Lengths of Paper Strips in Inches Ask students: What can you tell me about this? What do you notice? What information is here? Does anyone know what this is called? (a line plot)	Line plot Inches model		Create a line plot for the following data: Lengths of Pencils in Our Class 4 in.: 3 5 in.: 2 6 in.: 1 7 in.: 4 8 in.: 2

Assessments:
Chapter 8 Test
Chapter 8 Performance Task: Art Class