2017-2018	Grade 2 Go Math! Quarter 1 Planner CHAPTER 1 Number Concepts	8-11 Days

BIG IDEA: Place Value understanding with a focus on representing, naming, expanding, composing and decomposing two and three digit numbers. Students extend their understanding of place value to hundreds and to thousands by bundling 10 tens to make a hundred and later extend that understanding to bundling 10 hundreds to make a thousand. Review earlier place value experiences using concrete materials. Ask students to model and describe what happens when they have 10 ones. Reinforce the concept that 10 ones can be bundled into 1 ten. Use concrete materials to bundle groups of 10 to represent numbers including 100, 200, 300…900 as bundles of 1 hundreds. Build on experiences of bundling 10 tens into 1 hundred by giving students tasks in which they bundle more tens into hundreds. Explicitly connect work with concrete materials and place value charts to pictures, verbal descriptions, and writing numbers. Modeling 2 and 3 digit numbers with base ten blocks builds understanding that a number can be named in its expanded form as the sum of its hundreds, tens, and ones.

- When children use base ten blocks, which are pre-grouped, it is important that they know the concept of ten. Because the tens block is regrouped, its use is based on children's understanding that the tens block is composed of 10 single blocks and can be thought of as 1 ten.
- Some children may need to model 10 and 100 using ten frames and connecting cubes.
- Children should physically fill ten frames and then work together to show 10 filled ten frames. They should see that these filled ten frames show 100 and 10 groups of 10 ones.
- Children should also connect 10 cubes to make a bar that represents 1 ten. Then they can work together to show 10 connected bars of 10, and identify it as 100.

Adapted from Go Math: Teaching for Depth, pg. 9E.

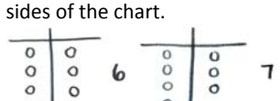
Professional Development Videos:
Number Sense, Segment 6: "Base Ten Numeration"
Number Sense, Segment 7: "Digits have Value"

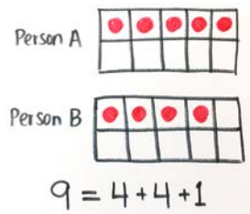
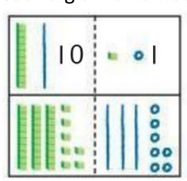
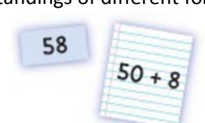
Quarter 1 Fluency Resources:
Fluency Resources in Go Math
Building Fluency through Word Problems
Building Fluency through Number Talks

Go Math Critical Area 1 Project: By the Sea

ESSENTIAL QUESTION: How do you use place value to find the values of numbers and describe numbers in different ways?
STANDARDS: 2.OA.3, 2.NBT.2, 2.NBT.3

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
1.1	Hands On: Algebra: Even and Odd Numbers *AC Option - Teach before 3.1 with the Doubles/ Doubles +1 strategy	2.OA.3 Companion Pg. 65 MP 1 MP 3 MP 4 MP 6 MP 7	How are even numbers and odd numbers different?	Students use ten frames and cubes to explore even numbers as multiples of 2. If a number is even, all of the cubes will be in pairs. If a number is odd, there is an extra cube not paired. Students should explore this concept with concrete objects before moving towards pictorial representations such as circles or arrays. This understanding will lay the foundation for multiplication and is closely connected to 2.OA.4.	Odd/Even Template Small manipulatives (beans, ones cubes, etc.)	Students explore how to evenly distribute cookies between two people. Students make a T-Chart and place counters to represent cookies one at a time on alternating sides of the chart. 	even odd make pairs make arguments extra left over	**ELD Standards** ELD Standards ELA/ELD Framework ELPD Framework **Access Strategies** Organizing Learning for Student Access to Challenging Content	Is the number 15 odd or even? Write an addition sentence and draw a picture to explain and justify your answer.

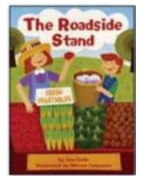
	*AC Option: combine with lesson 1.2							Student Engagement Strategies Problem Solving Steps and Approaches	
1.2	Algebra: Represent Even Numbers *AC Option - Teach before Ch. 3 Lesson 1 with the Doubles/ Doubles +1 strategy	2.OA.3 Companion Pg. 65 MP 2 MP 3 MP 4 MP 5 MP 7 MP 8	Why can an even number be shown as the sum of two equal addends?	Help children recognize that even numbers can be shown either as pairs (groups of two) with nothing left over or as two equal groups. Provide children with sets of an even number of objects. First have children separate the set of objects in groups of 2. Explain that if no objects are left over, then the number of objects in the set is an even number. A leftover object would show that the number of objects in the set is an odd number. Then have children work to separate the set of objects into two groups with the same number of objects in each groups. Children can check by matching 1-to-1.	Odd/Even Template Small manipulatives (beans, ones cubes, etc.)	Continue sharing cookies as done in the previous lesson. This time use two ten frames and be sure to write a number sentence. Decide if the number is even or odd. 	addition sentence, even numbers	**Equitable Talk** Accountable Talk Simply Stated Equitable Talk Conversation Prompts Accountable Talk Posters Five Talk Moves Bookmark Effective Math Talks Allow time for students to discuss math solutions with partners or in small groups. Make it a common practice to surface math vocabulary (orally and written) when students are explaining their strategies for solving math problems. Have a key vocabulary list to support students' use of math vocabulary in their oral and written responses **Cooperative Learning** Cooperative Learning Role Cards Collaborative Learning Table Mats Seating Chart Suggestions Math Word Wall Literature Connections: Whales Pg. 1-8	Is 13 odd or even? How do you know? Draw a picture or write to show how you know. How can I use doubles to explain my answer?
1.3	Understand Place Value	2.NBT.3 Companion Pg.103 MP 1 MP 3 MP 4 MP 5 MP 6	How do you know the value of a digit?	In this lesson, children are introduced to place value, the basis of our number system, by looking at the place-value positions of tens and ones. Children use pictorial base-ten models of numbers to help them see the value of each digit in a number. Later, they will draw quick pictures to represent 2-digit numbers. These models help them visualize that 10 ones are the same as 1 ten.  Composing and decomposing numbers is an important skill students will use when adding/subtracting by place value in later chapters.	Place Value Mat Double Ten-Frame Unifix cubes, or base ten blocks	Use a Place Value Mat to build numbers with base ten blocks. You can use a random number generator to get a number between 1 and 100 for students to build.	digits decompose compose place value tens, ones		Draw a quick picture to show the number 76. Describe the value of each digit in this number.
1.4	Expanded Form	2.NBT.3 Companion Pg.103 MP 3 MP 4 MP 5 MP 6	How do you describe a 2-digit number as tens and ones?	In this lesson, children learn to compose and decompose numbers as they write 2-digit numbers in different forms. One of those forms is expanded form, which will be a useful skill when children add and subtract multi-digit numbers in the future. The use of base-ten blocks and place value charts will enhance students' understandings of different forms of a number. After ample use of manipulatives, introduce students to the pictorial representation of base-ten blocks. This will assist them in communicating their understanding. It builds coherence between concrete and symbolic representations of numbers and place value. 	Place Value Mat Digit Cards	Play a quick round of "Number Maker" card game. Partners take turns drawing two cards from a set of Digit Cards. They then try to put the two digits together to see who can form the largest number. In later rounds, change the objective to getting the smallest number. After teaching the lesson, challenge students to repeat the game, recording their numbers in expanded form.	expanded form, tens, ones		How do you know the values of the digits in the number 58?

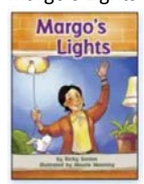
<table>
<tr>
<td>1.5</td>
<td>Different Ways to Write Numbers</td>
<td>2.NBT.3
Companion Pg.103

MP 5
MP 6</td>
<td>What are different ways to write a 2-digit number?</td>
<td>It is important for children to develop flexible thinking about numbers. Working with models and visual representations will help students understand place value. Visualizing numbers in a variety of ways helps children understand the size of numbers and develop the meaning of numbers. Continued experiences will help children deal with numbers mentally, which is an integral part of computation.</td>
<td>Cycle Map

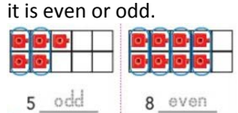
Model 2 Digit Numbers

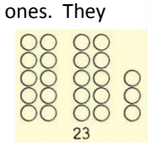
Writing 2 digit numbers puzzle</td>
<td>Students work in pairs using the Writing 2 digit numbers puzzle to match up the different ways to represent 2-digit numbers. You will need to cut these out in advance to mix the pieces.</td>
<td>2-digit numbers tens, ones</td>
<td rowspan="4"> 

In Grab-and-Go:
The Roadside Stand
 

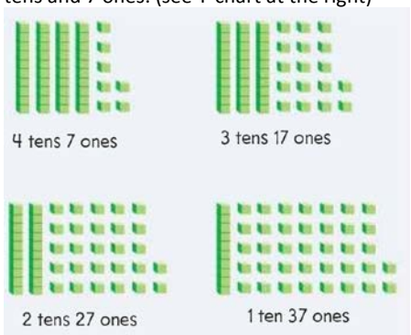
Margo's Lights
 

<u>Model and Discuss:</u>
Play the game "Three in a Row"
 

Use unifix cubes to represent a number and make pairs to see if it is even or odd.
 

Model how to show the number 23 using ten frames. Students make an illustration that shows groups of tens and ones. They model the number with ten frames and counters and then write the number.
 
</td>
<td>Write the number 63 in four different ways. (word, expanded, standard, __tens and __ones)</td>
</tr>
<tr>
<td>1.6</td>
<td>Algebra • Different Names for Numbers

*Option: Combine with 1.7</td>
<td>2.NBT.3
Companion Pg.103

MP 3
MP 6
MP 7
MP 8</td>
<td>How can you show the value of a number in different ways?</td>
<td>Have students begin with 47 ones, and continue regrouping the ones into tens until they end with 4 tens and 7 ones. (see T-chart at the right)
 

Have students analyze and describe the patterns in how the numbers of tens and ones change as they exchange tens for ones. Students will use the decomposing of numbers learned in this lesson when they regroup to add and subtract in later chapters.</td>
<td>T-chart:
<table><tr><th>Tens</th><th>Ones</th></tr><tr><td>4</td><td>7</td></tr><tr><td>3</td><td>17</td></tr><tr><td>2</td><td>27</td></tr><tr><td>1</td><td>37</td></tr><tr><td></td><td>47</td></tr></table></td>
<td>Write these riddles on the board:
• I have 2 tens. I have 1 one. What number am I?
• I have 1 ten. I have 2 more than 4 ones. What number am I?
Then, give these riddles with blanks. Challenge students to complete the riddles to describe numbers 1 to 19.
• I have ___ tens.
I have ___ ones.
What number am I? ___
• I have ___ tens.
I have ___ more than ___ ones.
What number am I? ___</td>
<td>tens, ones, t-chart</td>
<td>Draw quick pictures to show the number 38 in three different ways.</td>
</tr>
<tr>
<td>1.7</td>
<td>Problem Solving: Tens and Ones</td>
<td>2.NBT.3
Companion Pg.103

MP 1
MP 3
MP 5
MP 7</td>
<td>How does finding a pattern help you find all the ways to show a number with tens and ones?</td>
<td>In this lesson, students solve problems by finding different combinations of tens and ones to represent 2 digit numbers using the strategy find a pattern.
Finding a pattern helps children to organize the information so all the possibilities are included. Then children can examine the organized lists.
In this lesson, children are reviewing composing and decomposing numbers using place value as a foundation for regrouping in later chapters.
As with any activity, discussion of the processes involved and sharing ideas and strategies is important.</td>
<td>T-chart and Unifix cubes
Number Cards (21-50)</td>
<td>Partners shuffle and distribute Number Cards (21-50); 15 cards each, facedown.
Have children take turns choosing a card form their own pile and telling their partner how to model it on the work mat, without saying the number. For example, "Put 2 tens on the mat under Tens. Put 4 ones on the mat under Ones.</td>
<td>t-chart, tens, ones</td>
<td>What are all the different ways to organize 33 stickers?</td>
</tr>
<tr>
<td>1.8</td>
<td>Counting Patterns Within 100

*AC Option: Combine with 1.9 by skip-</td>
<td>2.NBT.2
Companion Pg.102

MP 1
MP 3
MP 4
MP 5
MP 7</td>
<td>How do you count by 1s, 5s, and 10s with numbers less than 100?</td>
<td>Using a hundred chart gives children support for the introductory counting activities in this lesson. Post a large hundred chart in your classroom.
In the rest of the lesson, children will count without this supporting structure. Help children see that they need to know what numbers they start and stop counting with, what number they count by, and whether they are counting forward or backward—</td>
<td>Hundreds chart</td>
<td>Looking on a hundreds chart and pointing at numbers as you go, have students count along with you as you…
• Count by 2's starting with 24
• Count by 5's starting with 55
• Count by 10's starting with 22</td>
<td>different amounts, different numbers, hundred chart,</td>
<td>Starting with 15, write the next 5 numbers skip-counting by 2s.

Starting with 60, write the next 5</td>
</tr>
</table>

	counting by 100s.	MP 8		these are the defining elements for counting sequences. You might have children work in small groups to write various kinds of counting sequences. Discuss with children the patterns they can use to check their counting. For example, when counting by 1s, the ones digit repeat in counting order. *The CA additional standard also calls for students to skip-count by 2s.			count by ones, fives, tens	Vocabulary Builder: Have children make and complete this chart for each new vocabulary word as they go through the chapter:  	numbers skip-counting by 5s. Starting with 47, write the next 5 numbers skip-counting by 10s.
1.9	Counting Patterns Within 1,000 *AC Option: Move to Chapter 2 after students have worked on place value with 3 digit numbers.	2.NBT.2 Companion Pg.102 MP 5 MP 7 MP 8	How do you count by 1s, 5s, 10s, and 100s with numbers less than 1000?	When children recognize patterns as they count, they can use those patterns to extend their counting skills. In this lesson, children apply structures learned for 2-digit counting to counting sequences with 3-digit numbers.	Hundreds chart; Number line	Write these counting sequence on the board and discuss: 40, 50, 60, 70, 80, 90, 140, 150, 160, 170, 180, 190, Describe a pattern you see when you count by 10s in numbers less than 100. Do you see that pattern in numbers greater than 100? 175, 180, 185, 190, 195, 200, 575, 580, 585, 590, 595, 600, In both of these examples of counting by 5s, do you see a pattern?	one thousand count by, fives, tens, hundreds, hundreds chart	Together, count 10 counters. Set them in pairs on paper, and draw loops around each pair. Explain that since each counter has a partner, the number 10 is even. Show children the vocabulary card for even. Add one more counter. Explain that since there is one counter without a partner, the number 11 is odd. Show children the vocabulary card for odd. Have children think of as many words as they can that relate to the term digits. Write them on separate pieces of paper. Then have children group the words into logical categories and label each category. Add the words to the Semantic Map #3.	Starting with 140, write the next 5 numbers skip-counting by 100s.
Assessments: **Go Math Prerequisite Skills Inventory** **Go Math Chapter 1 Test** **Go Math Chapter 1 Performance Task: Basketball Games** **Portfolio Assessment**									

2017-2018	Grade 2 Go Math! Quarter 1 Planner CHAPTER 2 Numbers to 1,000	15-16 Days

BIG IDEA: This chapter introduces the hundreds place value for 3- and 4-digit numbers to 1000. Students will look for and make use of structure in our base-ten number system. Once they make sense of this structure, they can use it to represent numbers flexibly, which prepares them for adding and subtracting multi-digit numbers where regrouping is required.

Children can best understand the relationships between the different place values by using concrete models such as base-ten blocks. These models help children see that 1 ten is a group of 10 ones and 1 hundred is a group of 10 tens. Later, when children are introduced to 4-digit numbers, they can see how the pattern continues—1 thousand is a group of 10 hundreds.

Work with base-ten blocks will help children visualize numbers so that they can understand how the value of a digit changes depending upon its place in a number. For example, a 4 in the ones place represents 4; a 4 in the tens place represents 40; and a 4 in the hundreds place represents 400.

Adapted from Go Math: Teaching for Depth, pg. 53E.

Professional Development Video:
Number Sense, Segment 7: "Digits have Value"

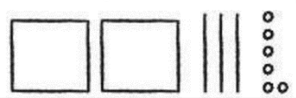
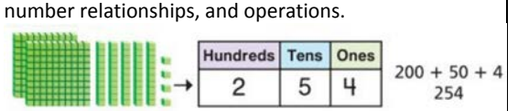
Quarter 1 Fluency Resources:
Fluency Resources in Go Math
Building Fluency through Word Problems
Building Fluency through Number Talks

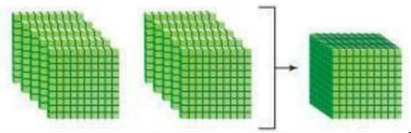
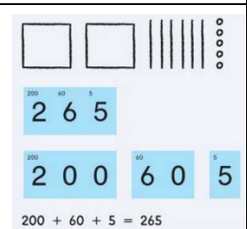
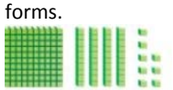
ESSENTIAL QUESTION: How can you use place value to model, write, and compare 3-digit numbers?
STANDARDS: 2.NBT.1a, 2.NBT.1b, 2.NBT.3, 2.NBT.4, 2.NBT.8

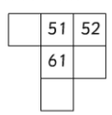
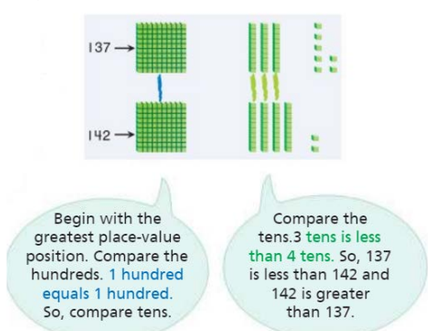
ELD STANDARDS:

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
2.1	Group Tens as Hundreds	2.NBT.1a 2.NBT.1b Companion Pg. 99 MP 4 MP 6 MP 7 MP 8	How do you group tens as hundreds?	In this lesson, students are introduced to the concept that 1 hundred is composed of 10 tens. Build coherence using skip-counting by 10s (K.CC.1, 2.NBT.2) to help students understand. Children can make 10 groups of 10 items each; they might make 10 chains of 10 paper clips. To help children visualize that 1 hundred is composed of 100 ones or 10 tens, have them count the items in one of their collections.	10 bundles of 10 objects (base-ten blocks, straws, sticks, pencils, etc.) Base 10 printables	Use the hundred flats from the Base 10 printables as a placemat to have students build numbers with the green base ten blocks. Use a random number generator to select numbers to build between 20 and 100. They will not have enough ones blocks, so they will need to regroup and use tens. • How many ones blocks do you need to make 1 *hundred*? (Count together by tens to 100, showing a tens block for each 10 that you count.) • How many tens blocks do you need to make 1 *hundred*?	Group tens as hundreds, Count groups of tens	**ELD Standards** ELD Standards ELA/ELD Framework ELPD Framework **Access Strategies** Organizing Learning for Student Access to Challenging Content Student Engagement Strategies	Ella has 50 stacks of ten pennies in each stack Describe how to find how many pennies Ella has in all.

2.2	Explore 3-digit Numbers	2.NBT.1 Companion Pg. 99 MP 1 MP 3 MP 7 MP 8	How do you write a 3-digit number for a group of tens?	Modeling with base-ten blocks and other visual representations can help students develop a better understanding of place value. Allow ample time (in this lesson and future lessons) for children to use blocks or small objects to represent tens, regroup 10 tens as one hundred, and write the 3--digit number that the blocks represent.	10 bundles of 10 objects (yesterday's objects will show how this concept applies to real-world applications) Base 10 printables	Use the hundred flats from the Base 10 printables as a placemat to have students build numbers with green base ten blocks (ONLY THE TENS). Ask students: What is the value of 12 tens? What is the value of 15 tens? What is the value of 23 tens? How do you know? Why isn't this 203?	3-digit numbers, tens, hundreds	Problem Solving Steps and Approaches **Equitable Talk** Accountable Talk Simply Stated Equitable Talk Conversation Prompts Accountable Talk Posters **Cooperative Learning** Cooperative Learning Role Cards Collaborative Learning Table Mats Seating Chart Suggestions Math Talk Moves Effective Math Talks Math Word Wall Have a key vocabulary list and encourage students	Draw or write to explain why 1 hundred and 4 tens and 14 tens name the same amount.
2.3	Hands On • Model 3-Digit Numbers	2.NBT.1 Companion Pg. 99 MP 4 MP 7	How do you show a 3-digit number using blocks?	Drawing quick pictures for 3-digit numbers gives children a pictorial representation of place-value relationships. It also bridges the concrete and symbolic representations of numbers. Allowing children to draw quick pictures will help them deepen their understanding of place value and allow them to communicate their understanding of the meanings of the digits in a number. For example, for 236, they would draw this quick picture to show the value of the digits in the number: 2 hundreds, 3 tens, and 6 ones. 	CPA Mat-Place Value Base 10 printables Digit Cards Place Value Mat	What does a digit's position in a number tell you about its value? Working in pairs or small groups, have students re-arrange the Digit Cards to show the digits 0, 1, and 3. They will make a list of all possible 3-digit numbers they can make. Then have students represent each number using base-ten blocks on a Place Value Mat.	Hundreds place, tens place, model 3 digit numbers		Write a 3-digit number using the digits 2, 9, and 4. Draw a quick picture to show the value of your number.
2.4	Hundreds, Tens, and Ones	2.NBT.1 Companion Pg. 99 MP 4 MP 7 MP 8	How do you write the 3-digit number that is shown by a set of blocks?	This lesson extends students' understandings of place value where students explore different ways to show 3-digit numbers. Have students explore using the base-ten blocks first. Then progress to expanded form, connecting base ten representations using a place value chart along with digits. Developing a solid understanding of place value will better prepare children to extend their understanding of numeration, number relationships, and operations.  Hundreds: 2 Tens: 5 Ones: 4 200 + 50 + 4 254 Give problems out of place value order to help build their understanding of the importance of the place value. Example: "What is the value of 6 tens, 2 hundreds, and 5 ones?"	CPA Mat-Place Value Base Ten Blocks Base 10 printables Deck of Cards/Digit Cards (to randomly select place value digits)	Write the digits 3 and 7 on the board. Have children draw quick pictures to show 37. • What 2-digit numbers can you write with these two digits? • How many tens are in the quick picture for 37? How many ones? Have children draw quick pictures to show 73. • How many tens are in the quick picture for 73? How many ones? • How are 37 and 73 alike? How are they different?	hundreds, tens, ones		Write a number that has a zero in the tens place. Draw a picture and write the expanded form of your number.
2.5	Place Value to 1,000	2.NBT.1 Companion Pg. 99 MP 1 MP 3 MP 5 MP 6 MP 7	How do you know the values of the digits in numbers?	This lesson builds on students' understanding of place value and focuses on the value of a digit in a number. Children can see the pattern of 10s: 10 ones equal 1 ten; 10 tens equal 1 hundred. The understanding of numbers is extended to 4-digit numbers with the introduction of the number 1000. Children learn that the pattern continues. Students should practice through speaking and writing: 345 has 3 hundreds	CPA Mat-Place Value Base Ten Blocks Base 10 printables Digit Cards	Give partners base-ten blocks and a set of 3 index cards labeled *hundreds, tens, ones*. Have one partner model a 3-digit number using the blocks and hold up the hundreds, tens, or ones card. Then have the other partner identify how many of that block are in	thousand digit		What is the value of the 5 in 756? Write and draw to explain how you know.

				with a value of 300, 4 tens with a value of 40, and 5 ones with a value of 5. The introduction of 1,000 is for students to build on the pattern that 10 hundreds equals 1000. Students are encouraged to use base ten blocks to build the numbers in the lesson to assist in identifying the digit in each place value, its word form, and its value. 		the model. Children should trade roles and repeat the activity.		to use precise math vocabulary in their oral and written explanations when solving math problems. Literature Connections: (found in Grab-and-Go): Dave and Boots  The Number Machine  Time to Take a Trip! 	
2.6	Number Names	2.NBT.3 Companion Pg.103 MP 2 MP 6 MP 7	How do you write 3-digit numbers using words?	In the previous chapter, students learned how to read and write 2-digit numbers in word form. Now they apply this knowledge to write 3-digit numbers in word form, which strengthens their understanding of place value. Knowing that 326 is written as three hundred twenty-six helps a student recognize the first digit in a 3-digit number is the hundreds value, the second digit is the tens value, and the last digit is the ones value. Remind students that "*and*" is not used when saying or writing a 3-digit whole number. This will help in the future with larger numbers and when decimals are introduced.	Base-ten blocks (to strengthen conceptual understanding) Base 10 printables Deck of cards	Review the word forms of 2-digit numbers. Mix up the Number Cards . Have a volunteer select a card, hold it up for the class, and say the number on the card. Write the word form on the board to help children with the correct spelling. Have the rest of the class write the word form of the number on their paper. Continue as time allows.	word form, tens digit, ones digit		Write a 3-digit number using the digits 5, 9, and 2. Then write your number using words.
2.7	Different Forms of Numbers	2.NBT.3 Companion Pg.103 MP 2 MP 7 MP 8	What are three ways to write a 3-digit number?	It is suggested to use the Secret Code cards to help students understand the value of digits in a number. Having students continue to utilize the base-ten blocks and/or drawings will strengthen their understanding of place value and better assist them when writing a number in different forms. In this lesson, students will explore numbers in the following forms: word form, standard form, base-ten notation, drawings, and expanded form. Giving students numbers in the various forms and asking them to represent them will continue to strengthen their understanding. 	Secret Code Cards Deck of Cards Looking at Numbers Every Which Way	Make true equations. Write one number in every space. Draw a picture if it helps. 1 hundred + 4 tens = ____ 4 tens + 1 hundred = ____ 14 tens = 10 tens + ___ tens 14 tens = __ hundred + 4 tens 14 tens = ___ ones 7 ones + 5 hundreds = ____ 8 hundreds = _____ 106 = 1 hundred + __tens + __ones 106 = ___tens + ___ones 106 = _____ones 90 + 300 + 4 = ____	hundreds, tens, ones	Model and Discuss: Represent numbers in multiple ways: base 10 blocks, quick pictures, and several different written forms.   Vocabulary Builder: List the vocabulary words on the board. Have children define	Teacher: Draw a quick picture of 3 hundreds, 5 tens, and 7 ones. Ask Students: What number does this picture show? Have students Write it in three different ways.
2.8	Algebra • Different Ways to Show Numbers	2.NBT.3 Companion Pg.103 MP 2 MP 6 MP 7	How can you use blocks or quick pictures to show the value of a number in different ways?	In Chapter 1, students learned to compose and decompose 2-digit numbers and to regroup 10 ones for 1 ten (compose) and 1 ten for 10 ones (decompose). Students will extend this concept to hundreds. They will learn to compose 10 tens for 1 hundred and decompose 1 hundred for 10 tens. Have students analyze and explain the pattern describing how the number of hundreds and tens change when	Base-Ten blocks Base 10 printables Number Line (Use a laminated sentence strip and a dry erase pen)	Have students represent 39 multiple ways on a T-chart: Tens | Ones 3 | 9 2 | 19 1 | 29 | 39	hundreds, tens, ones, model		Draw quick pictures to show the number 326 two different ways.

				they regroup (similar to what they did in Chapter 1 Lesson 6).		Extend this skill to 3-digit numbers within the lesson.		the words. Have children select two or three words from the list. Then, have them write sentences using those words. Children can then share their sentences. Discuss whether they used the vocabulary words correctly. Explain that is *greater than* means that one number has a larger value than another number. Show children two 3-digit numbers (128, 435). Help children model the numbers using base-ten blocks. Ask children which of these numbers is greater than the other. Game: Fish for Digits (Pg. 56) 	
2.9	Count On and Count Back by 10 and 100 *Option- Combine with 2.10	2.NBT.8 Companion Pg.112 MP 1 MP 2 MP 6 MP 7	How do you use place value to find 10 more, 10 less, 100 more, or 100 less than a 3-digit number?	Mentally adding and subtracting 10 and 100 is a gradually developed skill. Teachers can introduce this concept with visuals, and manipulatives if need to build understanding. The first step is for children to observe and discuss the visual patterns in numbers that are 10 more, 10 less, 100 more, 100 less. Teachers should continue practicing this concept orally at the beginning of future lessons (for 2 minutes) until students have grasped the pattern and concept. Begin by starting at a given number, letting students know whether to add/subtract by 10 or 100, and then have students recite and/or write the next five numbers on whiteboards. Students will struggle with skip counting over a hundreds number (186, 196, 206 or 422, 412, 402, 392). Giving students a number line with labeled hundred marks may help.	Hundreds Chart Base-Ten Blocks Base 10 printables Number Line (Use a laminated sentence strip and a dry erase pen)	Ask students what they know about counting on and counting patterns. • What number has one more ten then 130? • What number has three more tens than 160? Explain how you know. Practice counting by 2s, 5s, and 10s, starting from a number more than 100.	Less than, More than, 10 less, 10 more Count back		Choose any 3-digit number. Describe how to find the number that is 10 more, 10 less, 100 more, and 100 less.
2.10	Algebra • Number Patterns	2.NBT.8 Companion Pg.112 MP 2 MP 5 MP 6 MP 7	How does place value help you identify and extend counting patterns?	After children have had experience with the visual patterns, they will be ready to count orally. Mastery of this skill will take practice. Look for opportunities to practice this skill throughout the year, during moments of down time. Begin by starting at a given number, let students know whether to add/subtract by 10 or 100, and then students recite and/or write the next five numbers on whiteboards.	Hundreds Chart (Highlight patterns; How do the digits change when you move up, down, left, or right?) Number Line	Fill out a few squares in a blank hundreds chart and then cut it into pieces. Challenge students to fill in the blanks. Or use this document. 	Number Pattern, digits, next two numbers		How can you tell when a pattern shows counting on by tens? Hundreds?
2.11	Problem Solving • Compare Numbers *AC Option: Combine with 2.12 by writing sentences using the symbols <, >, = to compare numbers.	2.NBT.4 Companion Pg.104 MP 1 MP 2 MP 4 MP 6	How can you make a model to solve a problem about comparing numbers?	In this lesson, students use place value to compare numbers with base ten blocks. The blocks allow students to see concrete representations of the digits in each place. 	Base ten blocks Base 10 printables Place Value Mat Number Line Drawings	Have children use base-ten blocks to represent the numbers 154 and 169 on a Place Value Mat. Then ask them to draw a quick picture of each number. Encourage discussion of which number is greater. Ask children to explain how they know.	Compare, More Fewer		Draw to show how you can use models to compare 345 and 391.

2.12	2 Algebra • Compare Numbers	2.NBT.4 Companion Pg.104 MP 1 MP 2 MP 6 MP 8	How do you compare 3-digit numbers?	Students will compare 3-digit numbers using symbols. Allow students to explore the concept of beginning with the greatest place value position first. The process of beginning with the largest number and moving to the next greatest place-value is important since it is used to compare greater numbers and decimals (in later grades).	Digit Cards or Secret Code Cards Base Ten Blocks (for students to explain and justify their thinking) Base 10 printables	In pairs, each student selects 3 cards (the 1st card represents the hundreds, the 2nd card represents the tens, and the 3rd card represents the ones). They compare the 3-digit numbers they created and write a number sentence. Students must explain and justify their number sentences with their partner before picking more cards and repeating the process. Meanwhile, the teacher should monitor and ask reflective questions.	Compare = is equal to > is greater than < is less than		Explain how comparing 645 and 738 is different from comparing 645 and 649. How are comparing these numbers different from comparing 423 and 427?
Assessments: **Go Math Chapter 2 Test** **Go Math Chapter 2 Performance Task: The Apartment Building** ****Common Assignment: Go Math Critical Area 1 Performance Task: Two Schools** **Go Math Critical Area 1 Project: By the Sea**									

2017-2018 | **Grade 2 Go Math! Quarter 1 Planner** | **14-15 Days**

CHAPTER 3 Basic Facts and Relationships

BIG IDEA: Fluency is based on instructional strategies that are developed conceptually, rather than based on rote practice and memorization (Fuson, 2003; NRC, 2001). Thinking strategies for addition facts are directly related to one or more number relationships and include the following: Facts that have one addend of 1 or 2 (36 facts), Facts that have zero as one of the addends (19 facts), Doubles facts (10 facts), and Make a ten by decomposing one addend to add to the other. This can be enhanced through the ten frame. "Examining the relationships between addition and subtraction and seeing subtraction as involving a known and unknown addend are examples of adaptive reasoning. By providing experiences for young students to develop adaptive reasoning in addition and subtraction situations, teachers are also anticipating algebra as students begin to appreciate the inverse relationships between the two operations" (NRC, 2001, p.191).

For subtraction, learning to think of subtraction as addition can make subtraction as easy as addition. Rather than thinking of 14-8, students can be encouraged to focus on 8 and what other number makes 14. This strategy focuses on part-part-total relations, which have been shown to be particularly effective at supporting students' development of efficient thinking subtraction strategies. Emphasizing part-part-total relations help students develop an understanding of related facts and inverse operations, and their ability to recognize when to add and when to subtract.

Adapted from Go Math: Teaching for Depth, pg. 117E.

Professional Development Videos:
The Meaning of Addition and Subtraction, Segment 2: "Models of Addition"
The Meaning of Addition and Subtraction, Segment 4: "Turnaround Facts"
The Meaning of Addition and Subtraction, Segment 5: "Think Addition"

Quarter 1 Fluency Resources:
Fluency Resources in Go Math
Building Fluency through Word Problems
Building Fluency through Number Talks

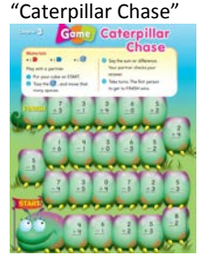
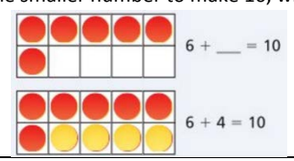
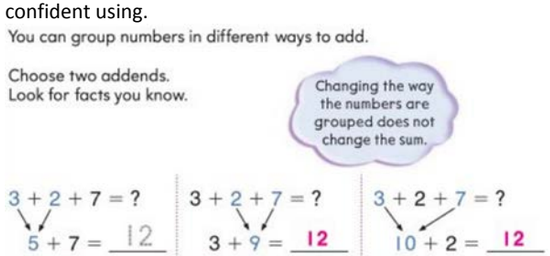
Go Math Critical Area 2 Project: A Bunch of Animals

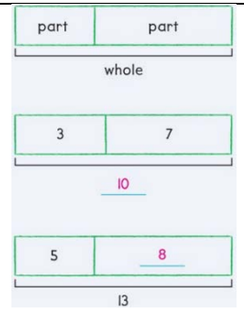
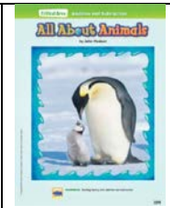
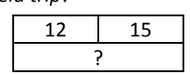
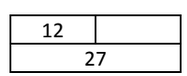
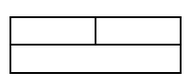
ESSENTIAL QUESTION: How can you use patterns and strategies to find sums and differences for basic facts?
STANDARDS: 2.OA.1, 2.OA.2, 2.OA.4

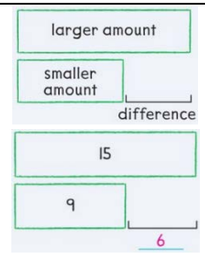
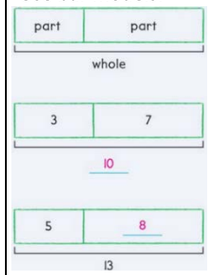
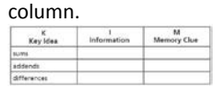
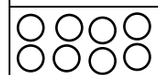
ELD STANDARDS:

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
3.1	Use Doubles Facts	2.OA.2 Companion Pg. 63 MP 1 MP 4 MP 7 MP 8	How can you use doubles facts to find sums for near doubles facts?	In this lesson, students use doubles facts to find sums for near doubles facts. This strategy helps students develop their understanding of the relationships between numbers. For example, a student can solve 5 + 6, by using 5 + 5 =10, and knowing that 6 is 1 more than 5, so the sum is going to be 1 more than 10. Similarly, they can also solve 5 + 4 because they understand that 4 is one less than 5. As children become fluent in the application of the doubles fact strategy, they strengthen their mental math skills. They can begin practicing decomposing numbers (with and without using manipulatives) to assist in deeply understanding this concept.	Doubles Mat Unifix Cubes Addition Fact Cards	Print and cut the Addition Fact Cards and have students sort them out: Which facts are doubles? Which facts are doubles plus one?	Sums Doubles Decompose	**ELD Standards** ELD Standards ELA/ELD Framework ELPD Framework **Access Strategies** Organizing Learning for Student Access to Challenging Content Student Engagement Strategies	Have students solve the following: 6 + 6 = ? 6 + 7 = ? Have them explain how one fact can be used to help them solve the other fact.
3.2	Practice Addition Facts	2.OA.2 Companion Pg. 63	What are some ways to remember sums?	In this lesson, students learn that changing the order of the addends does not change the sum (the commutative property of addition). Students understanding that 3 + 4 and 4 + 3 have the same sum	Doubles Mat Unifix Cubes Counters	Pairs of students roll two dice and write down an addition sentence that the dice represents. Repeat several times. Discuss with	Addends Count on Number sentence		Have students solve the following: 7 + 8 = ?

		MP 1 MP 7 MP 8		helps to build fluency by reducing the number of facts that students need to commit to memory.	dice	students: "Does the order of the dice matter?"	Commutative Property	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 Math Word Wall Play the game "Caterpillar Chase"  Literature Connections: All About Animals (Pg. 109-116)	8 + 7 = ? How does one help you solve the other?
3.3	Algebra • Make a Ten to Add	2.OA.2 Companion Pg. 63 MP 1 MP 5 MP 6 MP 7 MP 8	How is the make a ten strategy used to find sums?	A ten frame is a spatial organizer for students. It may be used to develop mental images or representations for combinations of numbers that have a sum of 10. Introduce the ten frame using a realistic example. For example, tell children there are ten cubbies on a shelf. Six of the cubbies are filled with one backpack each. How many more backpacks are needed to fill the rest of the cubbies? Working with ten frames will help children recall pairs of numbers that have a sum of 10, an important skill later used in addition and subtraction with greater numbers. Students should be encouraged to decompose the smaller number to make 10, which may not always be the 2nd addend.  	Double Ten Frame Number Line Counters, unifix cubes, or small objects	Give students the Double Ten Frame and have them represent the following addition problems using three different colored objects or counters: 9 + 5 + 1 = 9 + 1 + 5 = 7 + 2 + 3 = 7 + 3 + 2 = Ask students: Which problems were the most efficient to add? Why?	Decompose	Describe how you can use the make a ten strategy to find the sum of 7 + 9.
3.4	Algebra • Add Three Addends	2.OA.2 Companion Pg. 63 MP 1 MP 6 MP 7 MP 8	How do you add three numbers?	In this lesson, students use two important addition properties: the Commutative and Associative properties. Students learn that changing the way addends are grouped does not change the sum. Students may develop the misconception that they have to add the first two addends first. Be sure they do the same problem multiple ways and analyze which way was more efficient for them. Encourage students to analyze the addends to determine which two might make sense to add together first. This will also give the teacher formative assessment data on which strategies the students are more comfortable with and which ones they are not yet confident using.  	Double Ten Frame Number Line Counters or Unifix cubes	Have students practice these doubles facts, then have them add 1 to the sum. 4+4; then add 1 2+2; then add 1 7+7; then add 1 3+3; then add 1 5+5; then add 1 8+8; then add 1 6+6; then add 1	Sums Addends	Write or draw to explain 2 ways you can find the sum of 3 + 6 + 8.
3.5	Algebra • Relate Addition and Subtraction *Option-Combine with lesson 3.6	2.OA.2 Companion Pg. 63 MP 2 MP 6 MP 7 MP 8	How are addition and subtraction related?	This lesson focuses on utilizing bar models and related facts (or fact families). Displaying a bar model, and having students write all the number sentences connected to the bar model. Putting these	Part-Part-Total Bar Model Video Fact Families	Have children represent each of the following facts using connecting cubes. They should build the biggest number first and then break away the first number to find the second. Have them use • 10 – 3 = 7 • 9 – 4 = 5 • 14 – 7 = 7 • 15 – 6 = 9	Differences Related facts	Write all the number sentences for the following numbers: 3, 9, 12. Write a story for one of your number sentences.

				number sentences into context will better help students understand the bar model and the similarities and differences between addition and subtraction. The lesson focuses on having the students write just two number sentences; challenge them to write all four sentences instead. 		the linker cubes to describe the related addition fact. Solve using connecting cubes: There are 6 boys and 10 girls in the class. How many students are in the class? The class has 16 students. If 6 of the students are boys, how many are girls? Have students discuss the relationship between the two.		 (in Grab-and-Go): Doubles Fun on the Farm  Game Time!  Benny, Bessie, and the Blueberries  <u>Model and Discuss:</u> Have children show 5 red cubes and add 7 blue cubes. Which addition fact does your model show? Discuss with children how you can add numbers in any order.	
3.6	Practice Subtraction Facts *Option- Combine with lesson 3.5	2.OA.2 Companion Pg. 63 MP 1 MP 3 MP 4	What are some ways to remember differences?	In this lesson, students continue to work on practicing their related facts (fact families) to recall basic facts. Thinking about addition facts can be a good strategy for solving subtraction facts. Related addition and subtraction facts have the same whole and the same parts. This connection is a powerful mathematical tool and can be a very useful strategy for recalling basic facts. This lesson calls for students to just write the difference. Expand this lesson and have students identify the 3 numbers being used, and write all of the number sentences for those numbers.	Part-Part-Total Fact Families	Show this problem as an example: *Some students are going on a field trip. Twelve girls and 15 boys are going. How many children are going on the field trip?*  27 Students are going on a field trip. If 12 are girls, how many are boys?  Now, have students write their own story problems and represent them using a bar model: 	Count back		Write or draw to explain two different ways to find the difference for 12-3.
3.7	Use Ten to Subtract	2.OA.2 Companion Pg. 63 MP 2 MP 5 MP 6 MP 8	How does getting to 10 in subtraction help when finding differences?	By encouraging students to work flexibly with numbers, both their number sense and their computation skills can be strengthened. In this lesson, students use the benchmark number 10 when finding differences for basic facts. Number lines are a visual aid that will reinforce this mental math strategy. Use these two strategies simultaneously to build strong connections for children.	Number Line	Use the strategy "Make 10" to add efficiently: • 6 + 4 + 4 = • 2 + 8 + 2 = • 1 + 1 + 9 = • 1 + 8 + 2 = • 7 + 2 + 3 =	Difference Decompose		Describe how to use a tens fact to find the difference for 15-8.

3.8	Algebra • Use Drawings to Represent Problems	2.OA.1 Companion Pg. 59 MP 1 MP 3 MP 4 MP 5	How are bar models used to show addition and subtraction problems?	For comparison subtraction problems, two rows of bars are drawn. Drawing a bar model like this will help students make sense of word problems like: *Emily buys 15 pears and 9 apples. How many more pears than apples does she buy?* Emphasize the use of both addition and subtraction number sentences to solve. Larger Amount – Smaller Amount = Unknown Smaller Amount + Unknown = Larger Amount		Double Ten Frame Open Number Line (A laminated sentence strip & a dry erase marker) counters, unifix cubes Bar Model Comparison	Have students solve the following. Show them how they can represent this using a bar model. Diego has 8 pencils. Laura has 6 pencils. How many more pencils does Diego have than Laura? Sara has 7 stars. How many more stars does she need to reach her goal of 15 stars?	Comparison Bar model	Use bar models:  Vocabulary Builder: KIM Diagram Write the vocabulary word in the left column. Write information about the word in the center column. Have children draw a picture, a memory clue, in the right column. 	14 - 6 = Ask students to tell or write a story problem that could be solved by using the fact. Then ask them to tell or write comparison subtraction story problems that could be solved by using the fact. (This will help students better understand the difference between the two models)
3.9	Algebra • Use Equations to Represent Problems	2.OA.1 Companion Pg. 59 MP 1 MP 2 MP 4	How are number sentences used to show addition and subtraction situations?	In this lesson, students use number sentences to represent problem situations. Children must make sense of the problem situation to understand what is happening. They assess the information given, determine what question needs to be answered, and choose a strategy to represent and solve the problem. Drawing a bar model can help them make sense of the situation presented. Students then justify their answers symbolically. One way is to write a number sentence. This organizes the problem situation in a mathematical way. Children should make sure they understand what their mathematical answer represents within the problem.	Bar Model Comparison Open Number Line (A laminated sentence strip & a dry erase marker) Manipulatives	A group of children were flying 13 kites. Some kites were put away. Then the children were flying 7 kites. How many kites were put away? Use a bar model to solve. Then have students write a new story problem by changing the action in the story so that they would solve the problem a different way. Allow some children to share their story problems and number sentences with the class.	Number sentence		Write a story problem for the following addition sentence: 7 + __ = 16
3.10	Problem Solving • Equal Groups	2.OA.4 Companion Pg. 66 MP 1 MP 5 MP 6 MP 7	How can acting it out help when solving a problem about equal groups?	In this lesson, students can act out, use manipulatives, or draw pictures to show equal groups of objects. This also allows students to apply their knowledge of skip counting in real-world situations (2.NBT.2) and builds a foundation for learning about multiplication in later grades. Students may draw to show equal groups of objects. To show five groups of two objects, a student could draw two objects in one row, and then draw four more rows with two objects in each row. They could count by twos to find the total number of objects.	Counters, If possible, real-world objects.	Read these expressions aloud to children and have them build them with cubes and then draw cubes to find the answers. • 1 + 1 + 1 • 2 + 2 + 2 • 3 + 3 + 3 • 4 + 4 + 4 • 5 + 5 + 5	Equal groups		 Write a word problem that can be acted out using this picture.
3.11	Algebra • Repeated Addition	2.OA.4 Companion Pg. 66 MP 1 MP 2 MP 6	How can you write an addition sentence for problems with equal groups?	In this lesson, students write repeated addition sentences about a group of objects arranged in multiple rows composed of equal numbers of objects. Guide students to first recognize that the arrangement has the same number of objects in each row. Have them describe what they see in the arrangement. They may find it helpful to count the objects in each row to better understand that it is made up of equal groups. Then have them identify how many rows of equal groups	Counters	Max and 8 friends get books from the library. Each person gets 2 books. Draw a pictures to show the groups of books. How many books did they get?	Row Addition sentence		Write an addition sentence for a picture of 4 rows with 3 items in each row.

				make up the arrangement. This will build a foundation for learning multiplication in later grades.					
Assessments: **Go Math Chapter 3 Test** **Go Math Chapter 3 Performance Task: At the Zoo** **Go Math Critical Area 2 Project: A Bunch of Animals**									