

BIG IDEA: The commutative, associative, and distributive properties lay the foundation for fluency with basic facts through looking at the structure of multiplication and providing students with strategies for solving problems. These properties are used as strategies for multiplication and division as students move toward developing fluency. The Associative and Distributive Properties help students build fluency with multiplication by using facts they know to find unknown products. Problem solving situations and activities that include a variety of representations showing equal-sized groups, arrays, and area models lay the foundation for multiplication and division of whole numbers. It is important for students to understand the meaning of multiplication and division (3.OA.1, 3.OA.2) through the use of problem situations (3.OA.3). As students demonstrate understanding they begin to relate models to symbolic notation (3.OA.4).

Adapted from Go Math: Teaching for Depth, pg. 137E

Professional Development Videos:

Multiplication and Division: Strategies and Facts:

- [Segment 3: The Distributive Property](#)
- [Segment 5: Effective Drill and Practice](#)

Quarter 2 Fluency Resources:

- [Fluency Resources in Go Math](#)
- [Building Fluency through Word Problems](#)
- [Building Fluency through Number Talks](#)

ESSENTIAL QUESTION: What strategies can you use to multiply?

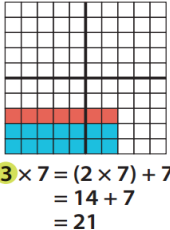
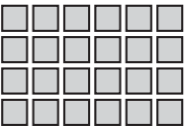
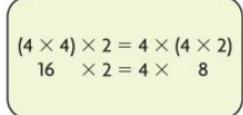
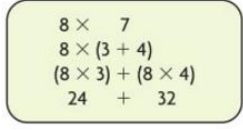
STANDARDS: 3.OA.3, 3.OA.5, 3.OA.7, 3.OA.8, 3.OA.9

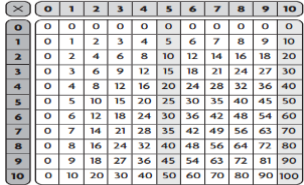
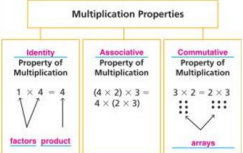
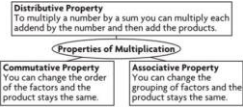

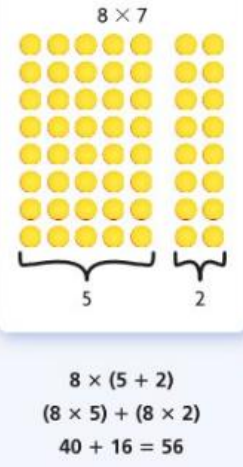
ELD STANDARDS:

- ELD.PI.3.1-Exchanging information/ideas via oral communication and conversations.
- ELD.PI.3.3-Offering opinions and negotiating with/persuading others.
- ELD.PI.3.5-Listening actively and asking/answering questions about what was heard.

- ELD.PI.3.9- Expressing information and ideas in oral presentations.
- ELD.PI.3.11- Supporting opinions or justifying arguments and evaluating others' opinions or arguments.
- ELD.PI.3.12-Selecting and applying varied and precise vocabulary.

Lesson		Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G3	Connections	Vocabulary	Academic Language Support	Journal												
4.1	Multiply with 2 and 4	3.OA.3 MP.1,4, 5,7	How can you multiply with 2 and 4?	<p>Students explore the relationship of doubles and multiplying by 2. Then students expand the concepts to multiplying by 4. Multiplying by 2 and then doubling the product has the same result as multiplying by 4. The goal is to understand multiplication with 2 and 4 and make it flexible and fast.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>x</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> </table> <p>You can use doubles to multiply by 4. Multiply by 2, then double the product.</p>	x	2	3	4	2				4				MathBoard circles and dots student number line bar model	<p>On Friday, Sam read 3 pages of his book. To finish reading the first chapter on Saturday, he needs to double the number of pages he read on Friday. How many pages does he need to read on Saturday?</p>	factor, product	<p>ELD Standards ELD Standards ELA/ELD Framework ELPD Framework Integrating the ELD standards into Math</p> <p>Access Strategies Organizing Learning for Student Access to Challenging Content</p> <p>Student Engagement Strategies</p>	<p>Explain how you can use doubles when multiplying with 4 to find 4 x 8.</p>
x	2	3	4																		
2																					
4																					

4.2	Multiply with 5 and 10	3.OA.3 MP.1,4, 7	How can you multiply with 5 and 10?	<p>Try different ways of representing multiplication with the factors 5 and 10; Strategies: jumps on a number line, skip counting by 5's and 10's, unknown factors.</p> <p>The goal is to understand multiplication with 5 and 10 and make it flexible and fast.</p> <table border="1"> <tr> <td>x</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10</td> <td></td> <td></td> <td></td> </tr> </table> <p>You can use doubles to multiply by 10. Multiply by five, then double the product.</p>	x	2	3	4	5				10				MathBoard number line bar model grid paper cubes or square tiles	<p>Have students practice multiplication facts for 2 and 4.</p> <p>Review how to fill the table by pointing out that the numbers at the top and sides are factors and that the products are written in the boxes where the rows and the columns meet.</p> <p>Multiplication Patterns - 5 & 10</p>	Multiple	Problem Solving Steps and Approaches Equitable Talk Accountable Talk Simply Stated Equitable Talk Conversation Prompts Accountable Talk Posters Five Talk Moves Bookmark	Michelle bought some pinwheels for a dollar and paid in dimes. How many dimes did she use? Explain.
x	2	3	4																		
5																					
10																					
4.3	Multiply with 3 and 6	3.OA.3 MP.1,4,6,7	What are some ways to multiply with 3 and 6?	<p>Students use a multiplication table to find products and to investigate the relationship between the products for 3s and 6s: the products of 6s are the products of 3s doubled.</p> <p>The goal is to understand multiplication with 3 and 6 and make it flexible and fast. This is accomplished through visual representations, exploring strategies, and solving problems in context.</p>	MathBoard Multiplication Table Bar Model grid paper cubes or square tiles	<p>Explain how knowing 2x7 can help you find 3x7.</p>  $3 \times 7 = (2 \times 7) + 7$ $= 14 + 7$ $= 21$	Factor, product	Effective Math Talks Cooperative Learning Cooperative Learning Role Cards Collaborative Learning Table Mats Seating Chart Suggestions	Explain how multiplying with 6 is like multiplying with 3.												
4.4	Algebra • Distributive Property	3.OA.5 MP.4,7,8	How can you use the Distributive Property to find products?	<p>This lesson supports students in partitioning a factor using an array to show why the Distributive Property works. The goal of this lesson is to use the Distributive Property as a strategy to partition one of the factors.</p>	MathBoard grid paper Array	<p>1. What is one way to break this array?</p>  <p>2. Write a number sentence to show your work.</p>	Distributive Property, addend, sum, arrays	Associative Property The Associative Property allows students to change the grouping of factors presented.	What are some ways you could break apart 7 x 9 using the Distributive Property?												
4.5	Multiply with 7	3.OA.7 MP.2,7,8	What strategies can you use to multiply with 7?	<p>This lesson supports students in breaking arrays into smaller arrays – using the Distributive Property of Multiplication to learn 7's.</p>	MathBoard grid paper Array	<p>Why is $2 \times 7 + 7$ equal to 3×7?</p>	Commutative Property of Multiplication		Explain how you would use the Commutative Property of Multiplication to answer 7 x 3.												
4.6	Algebra • Associative Property of Multiplication	3.OA.5 MP.1,4,7,8	How can you use the Associative Property of Multiplication to find products?	<p>Students can use the Associative Property of Multiplication (Grouping Property) to change the grouping in order to use facts they know to find the answer.</p>	MathBoard grid paper Array	<p>Describe 2 different ways you can use doubles to find 4×8.</p> <p>Possible answer: I can find 2×8 and then double the product. Or I can find 4×4 and then double the product.</p>	Associative Property of Multiplication	Distributive Property The Distributive property allows students to break apart facts they don't know into known facts.	Why would you use the Associative Property of Multiplication to solve $(10 \times 4) \times 2$? How would you regroup the factors?												
4.7	Algebra • Patterns on the Multiplication Table	3.OA.9 MP.1,3,7	How can you use properties to explain patterns on the	<p>Use number patterns in the multiplication table to see relationships among the facts.</p>	MathBoard Multiplication Table	<p>Give the students a multiplication chart. Ask them to shade the columns for 3 and 6 on the multiplication charts. Ask them to look for patterns in the shaded numbers.</p>	even, odd		Draw a picture that shows an example of a product of two even numbers. Write the matching multiplication sentence.												

			multiplication table?						
4.8	Multiply with 8	3.OA.7 MP.2,7,8	What strategies can you use to multiply with 8?	This lesson focuses on the application of the Associative Property of Multiplication and use of function tables to deepen understanding of multiplication and increase flexibility with basic facts.	MathBoard function table	There are 7 cats staying at a beach resort. Each cat eats 4 cans of food a day. How many cans of food will the cats eat in a week?	Associative property		What two facts can you double to find 8×4 ? Explain.
4.9	Multiply with 9	3.OA.7 MP.2,7,8	What strategies can you use to multiply with 9?	Three strategies are provided to help with the 9's facts; Distributive Property of Multiplication, multiplying by 10 and then subtracting and looking at the patterns of 9 (e.g. $9 \times 7 = 63$. Note that $6 + 3 = 9$)	MathBoard grid paper	Think "10 x 3, then take away one row of 3" ($30 - 3$). Think "10 x 6, then take away one row of 6" ($60 - 6$). Think "10 x 7, then take away one row of 7" ($70 - 7$). What pattern do you see?	subtraction		How can you use a ten and a subtraction strategy to find 6×9 ?
4.10	Problem Solving • Multiplication	3.OA.8,9 MP.1,4,5	How can you use the strategy make a table to solve multiplication problems?	Use the problem solving graphic organizer to solve multiplication problems	MathBoard	Ms. Henry has 21 tomato plants that she wants to plant in rows. She will put 2 plants in some rows and 1 plant in the others. How many different ways can she plant the tomato plants? Make a table to solve.	Make a table		Write a problem you can use the "make a table" strategy to solve. Then solve the problem.

Assessments:

[Go Math Chapter 4 Test](#)

Go Math Chapter 4 Performance Task: [Bake Sale](#)

BIG IDEA: Algebraic reasoning is supported by students’ engagement in multiplication. For example, given the equation $7 \times ? = 49$, students can use their knowledge of basic facts, guess and check, the hundreds chart, or drawings to find the unknown value that will make the equation true. The Distributive Property connects addition and multiplication. It allows the learner to use number sense to break apart a factor in a meaningful way to carry out the multiplication. Students also identify and describe a number pattern shown in a function table, use an array or a multiplication table to find an unknown factor.

Multiplication with the multiples of 10: Place value is the foundational principle of mathematics and is used in multiplication. For example, the number 60 can be represented by 6 tens. Then by substitution, 4×60 can be represented by 4×6 tens. This results in 24 tens or 240. Students can begin to explore this place-value contribution to multiplication with base ten blocks.

Adapted from Go Math: Teaching for Depth, pg. 187C

Professional Development Videos:

Multiplication and Division: Strategies and Facts:

- [Segment 3: The Distributive Property](#)

Quarter 2 Fluency Resources:

- [Fluency Resources in Go Math](#)
- [Building Fluency through Word Problems](#)
- [Building Fluency through Number Talks](#)

ESSENTIAL QUESTION: How can you use multiplication facts, place value, and properties to solve multiplication problems?

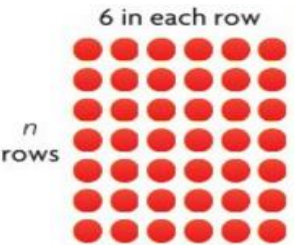
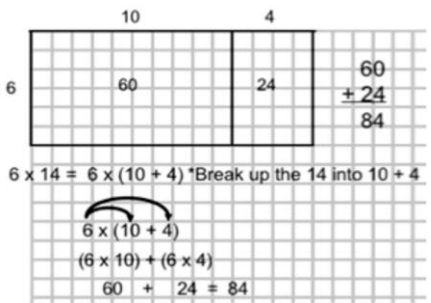
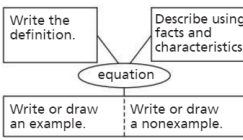
STANDARDS: 3.OA.9, 3.OA.4, 3.NBT.3

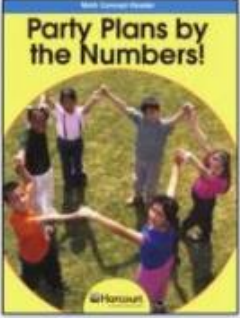
ELD STANDARDS:

ELD.PI.3.1-Exchanging information/ideas via oral communication and conversations.
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Lesson		Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G3	Connections	Vocabulary	Academic Language Support	Journal										
5.1	Algebra • Describe Patterns	3.OA.9 MP.4,6,7	What are some ways you can describe a pattern in a table?	Identify patterns and describe the relationship between the input and output values using either multiplication or addition.	function table MathBoard	Find the rule. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>8</td> </tr> <tr> <td>3</td> <td>12</td> </tr> <tr> <td>4</td> <td>16</td> </tr> <tr> <td>5</td> <td></td> </tr> </tbody> </table>	Input	Output	2	8	3	12	4	16	5		pattern, rule for the pattern	ELD Standards ELD Standards ELA/ELD Framework ELPD Framework Integrating the ELD standards into Math Access Strategies	Your teacher said, “The answer is 24.” What do you think the question was? Explain why you think this is.
Input	Output																		
2	8																		
3	12																		
4	16																		
5																			

5.2	Algebra • Find Unknown Numbers	3.OA.4 MP.2,4,5,6	How can you use an array or a multiplication table to find an unknown factor or product?	<p>Introduce students to equations and show them how to use arrays and the multiplication table to find unknown factors. Models such as array help students visualize the process and form a mental image.</p> <p>Find n for $n \times 6 = 42$ Use an array. Start with 42 counters and make 6 rows.</p>  <p>There are 7 rows. So, $n = 7$. $7 \times 6 = 42$</p>	<p>MathBoard array, function table</p>	Lily has 20 stuffed animals. She wants to put the same number of stuffed animals on each of 5 shelves. How many stuffed animals will Lily put on each shelf?	equation, array, Commutative Property of Multiplication, factor, product	<p>Organizing Learning for Student Access to Challenging Content</p> <p>Student Engagement Strategies</p> <p>Problem Solving Steps and Approaches</p> <p>Equitable Talk Accountable Talk Simply Stated</p> <p>Equitable Talk Conversation Prompts Accountable Talk Posters</p> <p>Five Talk Moves Bookmark</p>	Explain why it does not matter what letter or symbol is used to find an unknown factor.
5.3	Problem Solving • Use the Distributive Property	3.NBT.3 MP.1,3,4,7	How can you use the strategy <i>draw a diagram</i> to multiply with multiples of 10?	<p>Students use the Distributive Property of Multiplication (breaking apart strategy) to multiply with greater numbers. [e.g. $3 \times 14 = 3 \times (10 + 4)$]</p>  <p>$6 \times 14 = 6 \times (10 + 4)$ *Break up the 14 into 10 + 4</p> <p>$(6 \times 10) + (6 \times 4)$ $60 + 24 = 84$</p>	<p>MathBoard grid paper</p>	There are 6 rows of singers in a performance. There are 21 singers in each row. How many singers are in the performance?	Distributive Property	<p>Effective Math Talks Cooperative Learning Cooperative Learning Role Cards</p> <p>Collaborative Learning Table Mats</p> <p>Seating Chart Suggestions</p> 	Write a description of how a diagram can help you solve 2×40 .
5.4	Multiplication Strategies with Multiples	3.NBT.3 MP.2,4,5,7	What strategies can you use to multiply with multiples of 10?	<p>Multiply with multiples of ten using the number line, base ten blocks and place value. (e.g. $5 \times 30 = 5 \times 3 \text{ tens} = 15 \text{ tens} = 150$) These strategies will help students make connections between multiplication and the number system, counting, and place value.</p>	<p>MathBoard base-ten blocks</p>	Use a base-ten block to model and find the product of 60×7 .	multiple, place value, tens		Which strategy do you prefer to use to multiply with multiples of 10-use base-ten blocks, a number line, or place value? Explain why.

5.5	Multiply 1-Digit Numbers by Multiples of 10	3.NBT.3 MP.4,5,7,8	How can you model and record multiplying by 1-digit whole numbers multiples of 10?	<p>In this lesson, students will use the following tools to multiply by 1-digit number by a multiple of 10 with regrouping:</p> <ul style="list-style-type: none"> • Using base-ten blocks to concretely make equal groups of tens. • Drawing quick pictures of base-ten blocks to visualize models without using manipulatives; a stick represents a ten, a square represents a hundred. • Using paper and pencil to multiply, first multiplying the ones, then the tens. 	<p>MathBoard base-ten blocks</p>	Use a base-ten block to model and find the product of 7×30 .	hundreds, ones	<p>Literature</p>  <p><i>Party Plans by the Numbers!</i> From the Grab-and-Go™ Differentiated Centers Kit Students read the book and use multiplication facts and strategies to plan a party.</p>	Explain how to find 4×80 . Show your work.
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Assessments:

[Go Math Chapter 5 Test](#)

Go Math Chapter 5 Performance Task: [The School Play](#)

BIG IDEA: Division is represented by problem contexts where the total is known and either the number of groups or the number of objects in each group is unknown. When the number of objects in each group is unknown, sharing, or partitive, division is represented. When the number of group is unknown, measurement, or quotative, division is represented. Students need to explore division problem types and contexts that support them. They solve problems with groups, arrays and diagrams using counters and drawings. These activities not only build division concepts; they help students to learn to make sense of problems and persevere in solving them.

Adapted from Go Math: Teaching for Depth, pg. 217E

Professional Development Videos:

Multiplication and Division: Strategies and Facts:

- [Segment 2: Models and Visuals for Division](#)
- [Segment 4: Think Multiplication to Learn Division facts](#)

Quarter 2 Fluency Resources:

- [Fluency Resources in Go Math](#)
- [Building Fluency through Word Problems](#)
- [Building Fluency through Number Talks](#)

ESSENTIAL QUESTION: How can you use multiplication facts, place value, and properties to solve multiplication problems?

STANDARDS: 3.OA.3, 3.OA.2, 3.OA.6, 3.OA.7, 3.OA.5

ELD STANDARDS:

ELD.PI.3.1-Exchanging information/ideas via oral communication and conversations.

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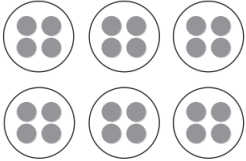
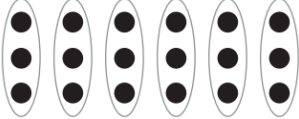

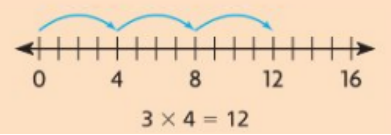
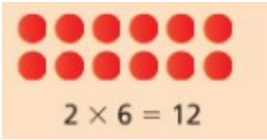
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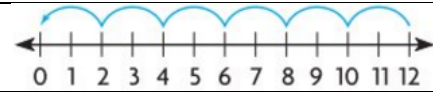
ELD.PI.3.9- Expressing information and ideas in oral presentations.

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Lesson	Standards & Math Practices	Essential Question	Math Content and Strategies	Models/ Tools Go Math! Teacher Resources G3	Connections	Vocabulary	Academic Language Support	Journal					
6.1	Problem Solving • Model Division	3.OA.3 MP.1,4,5,7	How can you use the <i>strategy act it out</i> to solve problems with equal groups?	Using a graphic organizer to analyze a problem. Students learn to identify what they need to find, what information they need to use, and develop a strategy or plan to use.	MathBoard	There are 35 people going to the amusement park. They will all travel in 5 vans with the same number of people in each van. How many people will travel in each van? Use counters or draw a picture to show the number of equal groups.	model, act it out	ELD Standards ELD Standards ELA/ELD Framework ELPD Framework Integrating the ELD standards into Math Access Strategies Organizing Learning for Student Access to Challenging Content Student Engagement Strategies	How does finding a pattern help you complete a table?				
6.2	Size of Equal Groups	3.OA.2 MP.1,4,5,7	How can you model a division problem to find how many in each group?	Division can have 2 meanings: Partitive (sharing) and quotative (measurement). In this lesson, students explore "partitive" division: sharing or finding the number in each group.	MathBoard circles, squares & tables	Use counters or draw a quick picture. Find the number in each group. Complete the table.	divide, equal groups	Describe how to divide 27 strawberries equally between 3 of your friends. Use words and pictures to show your thinking.					
					<table border="1"> <tr> <td>Counters</td> <td>Number of equal groups</td> <td>Number in each group</td> </tr> <tr> <td>24</td> <td>6</td> <td></td> </tr> </table>	Counters	Number of equal groups	Number in each group	24	6			
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6.3	Number of Equal Groups	3.OA.2 MP.1,4,5,7	How can you model a division problem to find how many equal groups?	<p>Division can have 2 meanings: Partitive (sharing) and quotative (measurement). In this lesson, students explore “quotative” division: finding the number of equal groups.</p>  <table border="1" data-bbox="835 626 1255 686"> <thead> <tr> <th>Counters</th> <th>Number of Equal Groups</th> <th>Number in Each Group</th> </tr> </thead> <tbody> <tr> <td>18</td> <td>■</td> <td>3</td> </tr> </tbody> </table>	Counters	Number of Equal Groups	Number in Each Group	18	■	3	MathBoard drawings & tables	Use counters or draw a quick picture. Make equal groups. Complete the table.	<table border="1" data-bbox="1443 464 1833 646"> <thead> <tr> <th>Counters</th> <th>Number of equal groups</th> <th>Number in each group</th> </tr> </thead> <tbody> <tr> <td>42</td> <td></td> <td>6</td> </tr> <tr> <td>64</td> <td></td> <td>8</td> </tr> <tr> <td>81</td> <td></td> <td>9</td> </tr> </tbody> </table>	Counters	Number of equal groups	Number in each group	42		6	64		8	81		9	divide, equal groups	Solve 36÷6 by making equal groups. Seating Chart Suggestions
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64		8																									
81		9																									
6.4	Model with Bar Models	3.OA.2 MP.1,4,5,7	How can you use bar models to solve division problems?	<p>Students develop a deeper understanding of division by using counters and bar models; moving toward representation of situations in an abstract way.</p> <p>$15 \div 5 = 3$</p>  <p>15 counters</p> <p>You can use a bar model to show how the parts of a problem are related.</p> <ul style="list-style-type: none"> • There are 15 counters • There are 5 equal groups • There are 3 counters in each group 	MathBoard bar model & counters	Write a word problem that could be solved by using each the model shown below.	<div data-bbox="1443 813 1833 946">  <p>$3 \times 4 = 12$</p> </div> <div data-bbox="1502 1003 1768 1141">  <p>$2 \times 6 = 12$</p> </div>	dividend, divisor, quotient	<div data-bbox="2034 833 2276 1078"> <p>Sharing Division</p> <p>Jessica has 12 marbles. She wants to share them evenly among 4 friends. How many marbles should she give each friend?</p> <p>The number in each group is unknown.</p> </div> <div data-bbox="2034 1114 2276 1359"> <p>Measurement Division</p> <p>Jessica has 12 marbles. She wants to give each friend 3 marbles. To how many friends can she give marbles?</p> <p>The number of groups is unknown.</p> </div>	Solve 64÷8. Draw bar model to show your thinking.																	
6.5	Algebra • Relate Subtraction and Division	3.OA.3 MP.2,4,7,8	How is division related to subtraction?	<p>Using repeated subtraction and a number line to help think about and visualize the process of division.</p> <p>For example, $12 \div 2$ is shown as 6 jumps of 2 from 12 to 0.</p>	MathBoard number line array square tiles or cubes	I am an array made with 24 tiles. I have 8 tiles in each row. How many rows do I have?	repeated subtraction		Explain how you can use repeated subtraction to solve a problem such as $24 \div 4$.																		



0 1 2 3 4 5 6 7 8 9 10 11 12

Partitive Division
To model $12 \div 3$, start with 12 tiles.

Form 3 rows. Continue placing 1 tile in each row until all the tiles are used.

The number in each row, 4, is the quotient.

$12 \div 3 = 4$

Quotative Division
To model $12 \div 3$, start with 12 tiles.

Form 1 row of 3 tiles. Continue making rows of 3 tiles until all the tiles are used.

The number of rows, 4, is the quotient.

$12 \div 3 = 4$

6.6	Investigate • Model with Arrays	3.OA.3 MP.4,6,7,8	How can you use arrays to solve division problems?	<p>Students use arrays to represent partitive and quotative arrays.</p> <p>Partitive Division To model $12 \div 3$, start with 12 tiles.</p> <p>Form 3 rows. Continue placing 1 tile in each row until all the tiles are used.</p> <p>The number in each row, 4, is the quotient.</p> <p>$12 \div 3 = 4$</p> <p>Quotative Division To model $12 \div 3$, start with 12 tiles.</p> <p>Form 1 row of 3 tiles. Continue making rows of 3 tiles until all the tiles are used.</p> <p>The number of rows, 4, is the quotient.</p> <p>$12 \div 3 = 4$</p>	MathBoard array	I am an array with 7 tiles in each row. My number of rows is 4 less than the number of tiles in each of my rows. How many tiles am I made with in all? You can use tiles or draw the array on a separate sheet of paper.	array	<p>Literature</p> <p>From the Grab-and-Go™ Differentiated Centers Kit</p> <p>Students read about how multiplication and division are related on a multiplication table.</p>	Draw an array to show how to arrange 20 chairs into 5 equal rows. Explain what each part of the array represents.
6.7	Algebra • Relate Multiplication and Division	3.OA.6 MP.2,4,7,8	How can you use multiplication to divide?	Students model the inverse operations of multiplication and division using arrays and bar models.	MathBoard array, bar model	Complete.	inverse operations	<p>___ rows of 8 = ___ ___ x 8 = ___ ___ ÷ 8 = ___</p>	How is $18 \div 6 = 3$ related to $6 \times 3 = 18$? Why are multiplication and division inverse operations?
6.8	Algebra • Write Related Facts	3.OA.7 MP.2,6,7,8	How can you write a set of related multiplication and division facts?	Students deepen understanding of the inverse relationship between multiplication and division by writing related facts.	MathBoard array	Your class is going to have a special presentation and your teacher has asked you to figure out a good way to place 24 chairs in your room for seating. There is only one requirement. All the chairs must be placed in an array.	related facts, factor, product		Write a division fact. Then write the rest of the related facts.
6.9	Algebra • Division Rules for 1 and 0	3.OA.5 MP.1,2,4,7	What are the rules for dividing with 1 and 0?	Students apply properties to solve division fact problems.		What two multiplication facts are related to $0 \div 6$? What property of multiplication do they show?	Identity Property of Multiplication		Compare the multiplication rules for 1 and 0 with the division rules for 1 and 0.

Assessments:
[Go Math Chapter 6 Test](#)
 Go Math Chapter 6 Performance Task: [At the Farm Stand](#)

BIG IDEA: Students explore strategies to calculate quotients for basic division facts. Connecting division and multiplication helps students develop proficiency with basic facts. Students are provided problem situations for which they determine what they need to do to solve the problem. Students represent the situations as division problems and reason about how to solve the decontextualized problems. Once students complete the calculations, they return to the story problem to see whether their situations make sense. These experiences help students to reason abstractly and quantitatively. The connection between multiplication and division can be illustrated with arrays. For example, an array with 3 rows of 5 can be used to illustrate 3×5 . If students don't recall a related facts, the array can be built to determine that $15 \div 5 = 3$.

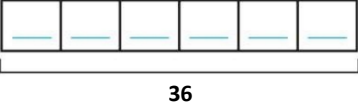


Adapted from Go Math: Teaching for Depth, pg. 263E


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| <p>Professional Development Videos:
 Multiplication and Division: Strategies and Facts:</p> <ul style="list-style-type: none"> • Segment 2: Models and Visuals for Division | <p>Quarter 2 Fluency Resources:</p> <ul style="list-style-type: none"> • Fluency Resources in Go Math • Building Fluency through Word Problems • Building Fluency through Number Talks |
|---|--|

ESSENTIAL QUESTION: What strategies can you use to divide?
STANDARDS: 3.OA.3, 3.OA.4, 3.OA.7, 3.OA.8
MATH PRACTICES: MP 2

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

Lesson		Standards & Math Practices	Essential Question	Math Content and Strategies	Models/Tools Go Math! Teacher Resources G3	Connections	Vocabulary	Academic Language Support	Journal
7.1	Divide by 2	3.OA.3 MP.4,5,6	What does dividing by 2 mean?	Explore both partitive & quotative division problems in context using 2 as a factor; Represent division situations with numbers and symbols.	MathBoard circles Cubes Square tiles	Give students 12 blocks that represent the total area of an array. Have them arrange the blocks in an array and identify the dimensions of their array, noting different arrays are possible for 12. Then ask if there is a way they can make a division sentence with the dividend represented by the total area of the array.	divide, equation, related facts	ELD Standards ELD Standards ELA/ELD Framework ELPD Framework Integrating the ELD standards into Math Access Strategies Organizing Learning for Student Access to Challenging Content	Write a story using division for which the answer is 18.
7.2	Divide by 10	3.OA.7 MP.1,2,5,8	What strategies can you use to divide by 10?	Students form a deeper understanding of division by using repeated subtraction, the number line and a multiplication table to divide by 10.	MathBoard Array student number line grid paper	Draw the following arrays: 6 by 3 4 by 8 2 by 7 Select one of your arrays and write two story problems that can be	dividend, divisor, factor, product, multiply, inverse operations	Student Engagement Strategies	Write and solve a word problem that involves dividing by 10. Example: $70 \div 10$.

					multiplication table	modeled with the array, one for multiplication and one for division.		Problem Solving Steps and Approaches													
7.3	Divide by 5	3.OA.3 MP.1,2,5,7	What does dividing by 5 mean?	Have students count by 5s to the whole, or to the dividend. Have students use a number line and count back by 5s from the dividend and ending in zero to find the number of equal groups, Students can also use the 10s facts and doubles to divide by 5.	MathBoard student number line function table	Find the quotient. $30 \div 5 =$ 5, 10, _____, _____, _____ 1 2 3 4 5 6	quotient	Equitable Talk Accountable Talk Simply Stated Equitable Talk Conversation Prompts Accountable Talk Posters	Write a problem that can be solved by $35 \div 5 = 7$.												
7.4	Divide by 3	3.OA.7 MP.1,4,5,6	What strategies can you use to divide by 3?	Make equal groups and count back on a number line to divide by 3.	MathBoard student number line	Draw an array to show 3×9 . Write a multiplication sentence and label the factors and the product. Write a division sentence and label the divisor, dividend, and quotient.	Equal groups, quotient	Five Talk Moves Bookmark Effective Math Talks Cooperative Learning Cooperative Learning Role Cards	Explain how to divide an amount by 3.												
7.5	Divide by 4	3.OA.7 MP.3,4,7,8	What strategies can you use to divide by 4?	Use factors as a division strategy. (e.g. to divide by 4 \rightarrow divide by 2 twice, $12 \div 4 = 3$ OR $12 \div 2 = 6$, $6 \div 2 = 3$)	MathBoard array, factors grid paper	A farmer planted 28 tomato plants in four equal rows. How many tomato plants are in each row?	array	Collaborative Learning Table Mats Seating Chart Suggestions	Write and solve a word problem that involves dividing by 4.												
7.6	Divide by 6	3.OA.7 MP.2,4,5,6	What strategies can you use to divide by 6?	Use counters, students separate into equal groups, or the inverse relationship or factors to divide by 6.	MathBoard counters Bar models	Write and solve a division word problem for the bar model. 	bar model, inverse relationship	Vocabulary Strategy <table border="1" data-bbox="2032 857 2274 959"><tr><td>K Key Idea</td><td>I Information</td><td>M Memory Clue</td></tr><tr><td> </td><td> </td><td> </td></tr></table>	K Key Idea	I Information	M Memory Clue				Divide $36 \div 6$? Explain why you chose that strategy.						
K Key Idea	I Information	M Memory Clue																			
7.7	Divide by 7	3.OA.7 MP.2,4,6,8	What strategies can you use to divide by 7?	Students use equal groups, inverse relationship to develop fluency in division.	MathBoard equal groups, array grid paper	There are 42 pencils packed into 7 boxes. If each box has the same number of pencils, how many pencils are in each box? Draw an array to show your work.	equal groups, inverse relationship	Literature Corey's Cookie Caper  Students read about how Corey and Carly divide cookies equally among friends and family.	Using pictures and numbers, explain how you can find how many groups of 7 are in 56.												
7.8	Divide by 8	3.OA.3,4 MP.1,4,5,7	What strategies can you use to divide by 8?	Students use repeated subtraction, related multiplication facts and a multiplication table to find the unknown divisor.	MathBoard equal groups bar models	Complete the bar model to help you find the number of pencils Maria sold to each person. 	repeated subtraction		Describe which strategy you would use to divide 48 by 8.												
7.9	Divide by 9	3.OA.7 MP.2,4,6,7	What strategies can you use to divide by 9?	Students make equal groups, and use factor to divide by 9. To use factors of 9 (3 and 3), divide by 3 and then divide the result by 3.	MathBoard function table	Complete and describe the pattern in the table below. <table border="1" data-bbox="1446 1203 1803 1263"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>6</td><td>12</td><td></td><td>24</td><td></td><td>36</td></tr></table>	1	2	3	4	5	6	6	12		24		36	equal groups		Does $_ \times 3 = 27$ have the same answer as $27 \div 3$? Show how you know.
1	2	3	4	5	6																
6	12		24		36																
7.10	Problem Solving • Two-Step Problems	3.OA.8 MP.2,4,6	How can you use the strategy <i>act it out</i> to solve two-step problems?	Use a graphic organizer to analyze a problem. Students learn to identify what they need to find, what information they need to use, and develop a strategy or plan to use.	MathBoard graphic organizer	Veronica bought a pack of 50 CDs. She gave 8 to her friend, Leslie. Then she made 6 equal sets of CDs. How many CDs are in each set?	two-stop problems		Write and solve a word problem for $18 \div 3 = 2$.												

7.11	Investigate • Order of Operations	3.OA.8 MP.4,5,6	Why are there rules such as the order of operations?	Students investigate how the order in which they perform operations might change the answer. The order of operations allows everyone to get the same answer.	MathBoard base ten	Solve $2 + 3 \times 10$. Is the answer 50 or 32? How does the order of operations help us determine? Explain.	order of operations	<p>Games <i>Division Cover-Up</i></p>  <p>Students practice division facts to place counters on the gameboard.</p>	Find the unknown number that makes the equation true. ■ + 24 ÷ 4 = 7
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Assessments:

[Go Math Chapter 7 Test](#)

HMH Performance Task: [At the Toy Store](#)

Critical Area – Whole Number Operations (3.OA.1, 3.OA.2)