Unit 1: Multiplication and Division: 5s and 2s
20-22 Days

Math Background:
- Research - TE p1T-1U
- Background - TE p1W-1MM
- Learning Community - TE p1NN-1PP

Learning Path:
- **Students learn the basic multiplications and divisions. They do this by participating in:**
  - testing and goal direction practice in school.
  - testing and goal direction practice at home.
- **Students learn about multiplying and dividing. They learn**
  - how to use different strategies for multiplying and dividing.
  - how multiplication and division are related.
  - how to use math drawings and equations to represent and solve word problems.

Progressions:

Last year, my students...	In my class, students will...	Next year, my students will...
- mastered all of the problem situations using addition and subtraction within 20. - reached fluency with finding sums of two-digit numbers. - solved simple two-step addition problems with single-digit addends.	- use properties of multiplication and division and patterns to multiply and divide within 100. - reach fluency with finding products of single digit numbers and their related quotients. - solve two-step word problems involving the four operations using a letter for the unknown.	- interpret a multiplicative equation as a comparison and solve multiplicative comparison problems. - extend number decomposition to factors, multiples, and prime and composite numbers. - generate and analyze patterns. - solve multistep word problems.

Big Idea 1: Meanings of Multiplication and Division: 5s and 2s
- About 6 days. Suggested date of completion:

Vocabulary: array, column, count-by, Cumulative Property of Multiplication, division, dividend, divisor, equal groups, Equal Shares drawing, equation, even number, factor, function table, in each, in every, multiplier, multiples, multiplication, odd number, per, pictograph, product, quotient, row, situation equation, solution equation

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.OA.1: Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.	
CC.3.OA.2: Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.

CC.K-12.MP.2: Reason abstractly and quantitatively. |
| **CC.3.OA.3:** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. | CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others. |
| **CC.3.OA.4:** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = $\blacklozenge$ ÷ 3, 6 × 6 = ?. Understand properties of multiplication and the relationship between multiplication and division. | CC.K-12.MP.4: Model with math.

CC.K-12.MP.5: Use appropriate tools strategically. |
| **CC.3.OA.5:** Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) | CC.K-12.MP.6: Attend to precision.

CC.K-12.MP.7: Look for and make use of structure.

CC.K-12.MP.8: Look for and express regularity in repeated reasoning. |
| **CC.3.OA.6:** Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. Multiply and divide within 100. | |
| **CC.3.OA.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can | |

be expressed as 5 × 7. **CC.3.OA.9:** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.	

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
1.1 TE P1-10	**I can** • identify and use patterns to multiply with 5. **Formative Assessment:** Ask students to explain how they can use multiplication to find the total of 5 + 5 +5 + 5 + 5 + 5 + 5. Students should give the equation 7 x 5 = 35.	OA.1 OA.4 OA.7 OA.9 MP.2 MP.3 MP.4 MP.5 MP.6	SAB p5 (E) SAB p6 (E) HW p3 (NE) R p4 (NE)	
	Lesson 1.1 Notes			
1.1 AND 1.3	**I can** • study my count-bys, multiplications, and divisions on my own or with a partner.	OA.1 OA.3 OA.5 OA.7 MP.1 MP.2 MP.3 MP.4 MP.5 MP.6 MP.8	SAB p15 (E) HW p1 (E) HW p8 (E) HW p2 (NE)	
	Lesson 1.1 AND 1.3 Notes			
1.2 TE P11-18	**I can** • use multiplication and drawings to represent equal groups situations.	OA.1 OA.3 OA.7	SAB p7 (E) SAB p8 (E) SAB p9 (E) SAB p10 (NE)	

	Formative Assessment: Ask students to explain when an Equal Shares drawing is faster to make than an Equal Groups drawing. Students should explain that an Equal Shares drawing is faster when there are many things in each group.	MP.2 MP.3 MP.4 MP.6 MP.7	HW p5 (NE) R p9 (NE)	
	Lesson 1.2 Notes			
1.3 TE p19-32	**I can** • use multiplication and drawings to represent array situations. • use multiplication and drawings to represent the Commutative Property. **Formative Assessment:** Ask students to explain why switching he order of the factors in a multiplication equation does not change the product. Students should use arrays to show that order of the factors does not change product.	OA.1 OA.3 OA.5 OA.7 MP.1 MP.2 MP.3 MP.4 MP.5 MP.6 MP.8	SAB p19 (E) SAB p20 (E) SAB p21 (E) SAB p22 (E) HW p9 (NE) R p10 (NE)	
	Lesson 1.3 Notes			
1.4 TE P33-44	**I can** • relate division to multiplication with an unknown factor. **Formative Assessment:** Ask students what multiplication with an unknown number they can write to find 20 ÷ 5 = __. Students should write __ x 5 = 20 and give the answer of 4.	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 MP.1 MP.3 MP.4 MP.5 MP.6 MP.7	SAB p23 (E) SAB p24 (E) SAB p25 (E) SAB p26 (E) HW p13 (NE) R p14 (NE)	

	Lesson 1.4 Notes			
1.5 TE P45-54	**I can** • identify patterns in 2s count-bys and multiplications. • relate multiplication and division. **Formative Assessment:** Ask students to describe any patterns found in the 2s count-bys and multiplications and to explain how these patterns can help them when multiplying. Students may describe that the count-bys skip a number between and that all products of 2s are even. So if a product of 2 is odd, they know they need to find their error and correct it.	OA.1 OA.2 OA.4 OA.6 OA.7 OA.9 MP.1-8	SAB p28 (E) SAB p29 (E) SAB p30 (E) HW p19 (NE) R p20 (NE)	
	Lesson 1.5 Notes			
1.6 TE P55-62	**I can** • build fluency with 2s and 5s multiplications and divisions. **Formative Assessment:** Ask students to name their other multiplications and divisions they know if they know that 7 x 2 = 14. Students should name 2 x 7 = 14, 14 ÷ 7 = 2, and 14 ÷ 2 = 7.	OA.1 OA.3 OA.5 OA.6 OA.7 MP.1 MP.2 MP.3 MP.5 MP.6 MP.7 MP.8	SAB p31 (E) SAB p32 (E) HW p21 (NE) R p22 (NE)	
	Lesson 1.6 Notes			

Quiz 1			**AG p14 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 2: Patterns and Strategies 9s and 10s About 3 days.
- Suggested date of completion:

Vocabulary: equation, Fast Array drawing, multiplier finger, Quick 9s, variable

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.OA.1: Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.	
CC.3.OA.2: Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.	CC.K-12.MP.1: Make sense of problems and persevere in solving them. CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.3.OA.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ◆ ÷ 3, 6 × 6 = ?. Understand properties of multiplication and the relationship between multiplication and division.	CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically.
CC.3.OA.6: Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. Multiply and divide within 100.	CC.K-12.MP.6: Attend to precision.
CC.3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.	CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.
CC.3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.	

Lesson	Learning Target	CCSM and SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
1.7 TE P63-72	**I can** • explore patterns in 10s count-bys, multiplications, and divisions and represent. • solve problems involving multiplication and division with 10. **Formative Assessment:** Ask students to explain how they know a number is a 10s count-by and give an example. Students should explain that any number that is a 10s count-by will end in 0. Example: 90 is a 10s count-by because it ends in 0.	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 OA.9 MP.1 MP.2 MP.3 MP.5 MP.6 MP.7 MP.8	SAB p34 (E) SAB p35 (E) SAB p36 (E) HW p25 (NE) R p26 (NE)	
	Lesson 1.7 Notes			
1.8 TE P73-82	**I can** • identify patterns in 9s multiplications and divisions and learn a strategy for quickly multiplying and dividing with 9s. **Formative Assessment:** Ask student to explain how to find the product 4 x 9 using 10s multiplication and using Quick 9s method.	OA.1 OA.4 OA.6 OA.7 OA.9 MP.2 MP.3 MP.4 MP.5 MP.6 MP.7 MP.8	SAB p40 (E) HW p31 (NE) R p32 (NE)	
	Lesson 1.8 Notes			

1.9 TE P83-88	**I can** • build fluency with 2s, 5s, 9s, and 10s multiplications and divisions. **Formative Assessment:** Ask students to explain how a Fast Array drawing can be used to solve a division problem. Student should explain how to use a related multiplication or division using the Fast Array drawing for the numbers to solve a division.	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 MP.3 MP.4 MP.5 MP.6	SAB p43 (E) SAB p44 (E) HW p35 (NE) R p36 (NE)	
	Lesson 1.9 Notes			
Quiz 2			**AG p15 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 3: Strategies for Factors and Products: 3s and 4s
- About 5 days. Suggested date of completion:

Vocabulary: 5s shortcut, area, array, commutative, count bys, Distributive Property, divisor, Equal Shares drawing, Fast Array, multiplier, multiplication, product, repeated addition

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.OA.1: Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7. **CC.3.OA.2:** Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8. **CC.3.OA.3:** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. **CC.3.OA.4:** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ◆ ÷ 3, 6 × 6 = ?. Understand properties of multiplication and the relationship between multiplication and division. **CC.3.OA.5:** Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) **CC.3.OA.6:** Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. Multiply and divide within 100. **CC.3.OA.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.	CC.K-12.MP.1: Make sense of problems and persevere in solving them. CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others. CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

CC.3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

CC.3.MD.5a: Recognize area as an attribute of plane figures and understand concepts of area measurement. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.

CC.3.MD.5b: Recognize area as an attribute of plane figures and understand concepts of area measurement. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.

CC.3.MD.6: Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

CC.3.MD.7a: Relate area to the operations of multiplication and addition. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

CC.3.MD.7b: Relate area to the operations of multiplication and addition. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

CC.3.MD.7c: Relate area to the operations of multiplication and addition. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning.

CC.3.MD.7d: Relate area to the operations of multiplication and addition. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Lesson	Learning Target	CCSM and SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
1.10 TE P89-98	I can • look for patterns in and practice 3s count-bys, multiplications, and divisions. • learn a new strategy for finding products for multipliers greater than 5. **Formative Assessment:** Ask students to explain the different strategies they can use to find 9 x 3. Some strategies students may describe are skip counting, using fingers, and using the 5s count shortcut.	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 OA.9 MP.1 MP.2 MP.3 MP.5 MP.6 MP.7 MP.8	SAB p46 (E) SAB p47 (E) SAB p48 (E) HW p39 (NE) R p40 (NE)	
	Lesson 1.10 Notes			
1.11 TE P99-108	**I can** • use the area model for multiplications. **Formative Assessment:** Ask students to explain different ways they can find the area of a rectangle that I 6 row by 4 columns. Students may describe counting square units in the rectangle, multiplying the side lengths, or separating the rectangle into two smaller rectangle and adding the areas of the smaller rectangles.	OA.4 OA.5 OA.6 OA.7 MD.5a MD.5b MD.6 MD.7a MD.7b MD.7c MD.7d MP.2 MP.3 MP.5	SAB p51 (E) SAB p52 (E) HW p69 (NE) R p70 (NE)	

		MP.6 MP.7 MP.8		
	Lesson 1.11 Notes			

1.12 TE P109-118	**I can** • look for patterns in 4s multiplications and count-bys, and learn a strategy for finding 4s count-bys, and solve problems involving 4s. **Formative Assessment:** Ask students to explain how they can use the answers 2 x 4 and 6 x 4 to find the answer to 8 x 4. Students should make a 8 x 4 rectangle and decompose it to explain why this can be done.	OA.1 OA.2 OA.3 OA.4 OA.5 OA.6 OA.7 OA.9 MD.7b MD.7c MP.1-8	SAB p56 (E) SAB p57 (E) SAB p 58 (E) HW p75 (NE) R p76 (NE)	
	Lesson 1.12 Notes			
1.13 TE P119-126	**I can** • develop multiplication and division strategies and use them to solve problems. **Formative Assessment:** Ask students to explain how they can use relationships in a Fast Array to find divisions they don't know. Students should describe how multiplication can be used to find a division using the numbers in the Fast Array.	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 MP.1 MP.3 MP.4 MP.5 MP.6 MP.7 MP.8	SAB p59 (E) SAB p60 (E) HW p77 (NE) R p78 (NE)	
	Lesson 1.13 Notes			
1.14 TE	**I can** • fluently multiply and divide with 2s, 3s, 4s, 5s, 9s, and 10s.	OA.1 OA.2 OA.3	SAB p61(E) SAB p32 (E) SAB p63 (E)	

P127-132	**Formative Assessment:** Ask students to explain how they can use a multiplication strategy to find the answer to 7 x 4. Students may explain finding the area of a rectangle to finding the product or they may explain how to find it using the distributive property or the 5s shortcut.	OA.4 OA.5 OA.6 OA.7 MD.7c MP.1 MP.3 MP.5 MP.6	SAB p64 (E) HW p79 (NE) R p80 (NE)	
	Lesson 1.14 Notes			
Quiz 3			**AG p16 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Vocabulary: array, Associative Property of Multiplication, Commutative Property of Multiplication, divisor, equal groups, Identity Property of Multiplication, multiplies, quotient, Zero Property of Multiplication

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CC.3.OA.2: Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.	CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.3.OA.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = � ÷ 3, 6 × 6 = ?. Understand properties of multiplication and the relationship between multiplication and division.	CC.K-12.MP.4: Model with math.

CC.K-12.MP.5: Use appropriate tools strategically. |
| **CC.3.OA.5:** Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) | CC.K-12.MP.6: Attend to precision.

CC.K-12.MP.7: Look for and make use of structure.

CC.K-12.MP.8: Look for and express regularity in repeated reasoning. |
| **CC.3.OA.6:** Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. Multiply and divide within 100. | |
| **CC.3.OA.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7. | |

CC.3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.	

Lesson	Learning Target	CCSM and SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
1.15 TE P133-144	**I can** • use multiplication properties and division rules as strategies to multiply and divide with 1 and 0. **Formative Assessment:** Ask students to describe any patterns found in the 1s or 0s multiplications and divisions and to explain how these patterns can help them when multiplying by 1 or 0. Students should explain that knowing these patterns or rules helps them to know the answer as soon as they see 1 or 0.	OA.5 OA.6 OA.7 OA.9 MP.3 MP.5 MP.6 MP.7 MP.8	SAB p67 (E) SAB p68 (E) SAB p69 (E) HW p83 (NE) R p84 (NE)	
	Lesson 1.15 Notes			
1.16 TE P145-150	**I can** • identify, solve, and create multiplication and division word problems. **Formative Assessment:** Ask students to describe the difference between and array and an equal groups multiplication problem. Students should explain that in an array problem, rows and columns are usually mentions. In an Equal Groups problem, equal groups are described.	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 MP.1 MP.3 MP.4 MP.5 MP.6	SAB p69 (E) SAB p70 (NE) HW p85 (NE) R p86 (NE)	
	Lesson 1.16 Notes			

1.17 TE P151-156	**I can** practice with 2s, 3s, 4s, 5s, 9s, and 10s multiplications and divisions. **Formative Assessment:** Ask students to explain how you can use 8÷2 = 4 to help you find 8÷4. Students should explain that for a set of 3 numbers such as 8, 2, and 4 there are two divisions and two related multiplications. For example, if you know 8÷2 = 4, then you know 8÷4 = 2 and you also know 2x4 = 8 and 4x2 = 8.	OA.6 OA.7 MP.5	SAB p73 (E) SAB p74 (E) HW p89 (NE) R p90 (NE)	
	Lesson 1.16 Notes			
1.18 TE P157-162	**I can** practice multiplications and divisions and solve word problems for 0s, 1s, 2s, 3s, 4s, 5s, 9s, and 10s. **Formative Assessment:** Ask students to explain how you can use 8 ÷ 2 = 4 to help you find 8 ÷ 4. Students should explain that for a set of 3 numbers such as 8, 2, and 4 there are two divisions and two related multiplication. For example, if you know 8 ÷ 2 = 4, then you know 8 ÷ 4 = 2 and you also know 2 x 4 = 8 and 4 x 2 = 8.	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 MP.1 MP.3 MP.4 MP.5 MP.6	SAB p83 (E) SAB p84 (E) HW p91 (NE) R p92 (NE)	
	Lesson 1.18 Notes			

1.19 TE P163-168	Focus on Mathematical Practices	OA.1 OA.2 OA.3 OA.4 OA.5 OA.7 OA.9 MP.1-8	SAB p85 (E) SAB p86 (E) HW p93 (NE) R p94 (NE)	
	Lesson 1.19 Notes			
Quiz 4			**AG p17 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Unit 1: Enrichment/Intervention Loop
● About 3-5 days. Suggested date of completion:
Unit Test Objectives ● 1A Recall basic multiplications and divisions with 0, 1, 2, 3, 4, 5, 9, and 10. ● 1B Identify and use patterns, properties, rules, and area to multiply and divide. ● 1C Write and solve a multiplication equation with an unknown to solve a division. ● 1D Use multiplication and division to solve real world word problems involving equal groups and arrays.
Day 1: Final Formative Assessment - SAB p87-88
Day 2-4: Reteaching Activities – TE p
Day 5: Assessment - Unit 1 Test AG p22-25

Unit 2: Multiplication and Division with 6, 7, and 8, Multiply with Multiples of 10, and Problem Solving
17-19 Days

Math Background:
- Research - TE p173Q-173R
- Background - TE p173S-173LL

Learning Path:
- **Students:**
    - continue practicing with the factors covered in Unit 1.
    - learn multiplications and divisions for 6, 7, and 8.
    - extend their skills with an introduction of multiplying a one-digit number by a multiple of 10.

Big Idea 1: The Remaining Multiplications

- About 7 days. Suggested date of completion:

Vocabulary: array problem, area, area problem, equal groups problem, Fast Area Drawing, length, square number, width

Common Core State Standards for Math [CCSS-M]	**Common Core Standards of Mathematical Practices [SMPs]**
CC.3.OA.1: Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.3.OA.2: Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.	CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and
CC.3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	critique the reasoning of others.
CC.3.OA.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ◆ ÷ 3, 6 × 6 = ?. Understand properties of multiplication and the relationship between multiplication and division.	CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically.
CC.3.OA.5: Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)	CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.
CC.3.OA.6: Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. Multiply and divide within 100.	
CC.3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.	

CC.3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends. **CC.3.MD.5a:** Recognize area as an attribute of plane figures and understand concepts of area measurement. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. **CC.3.MD.5b:** Recognize area as an attribute of plane figures and understand concepts of area measurement. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. **CC.3.MD.6:** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). **CC.3.MD.7a:** Relate area to the operations of multiplication and addition. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. **CC.3.MD.7b:** Relate area to the operations of multiplication and addition. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	

Lesson	Learning Target	CCSM and SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
2.1	**I can** • explore patterns in 6s count-bys, multiplications, and divisions. • solve multiplication problems. **Formative Assessment:**	OA.4 OA.5 OA.6 OA.7 OA.9 MP.1 MP.2 MP.3 MP.5 MP.6 MP.7	SAB p92 (E) HW p97 (NE) R p98 (NE)	
2.2	**I can** • develop strategies for solving real-world area problems. **Formative Assessment:**	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 MD.5a MD.5b MD.7a MD.7b MP.2 MP.3 MP.4 MP.5 MP.6	SAB p96 (E) SAB p97 (E) SAB p98 (E) HW p101 (NE) R p102 (NE)	
2.3	**I can** • explore patterns in 8s count-bys, multiplications, and divisions. • solve multiplication problems. **Formative Assessment:**	OA.4 OA.6 OA.7 OA.9 MP.2	SAB p102 (E) HW p105 (NE) R p106 (NE)	

		MP.3 MP.5 MP.6 MP.7	
2.4	**I can** • write multiplication and division word problems of various types. **Formative Assessment:**	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 MP.1 MP.3 MP.5 MP.6	SAB p19 (E) SAB p103 (E) SAB p104 (E) SAB p105 (E) SAB p106 (E) HW p107 (NE) R p108 (NE)	

2.5	**I can**
	  • explore patterns in 7s count-bys, multiplications, and divisions.
	  • solve word problems.
	
	Formative Assessment:
		OA.4
		OA.6
		OA.7
		OA.9
		
		MP.2
		MP.3
		MP.5
		MP.6
		MP.7
			SAB p108 (E)
			HW p111 (NE)
			R p112 (NE)	

2.6	**I can**
	  • identify patterns in 2s count-bys and multiplications.
	  • relate multiplication and division.
	
	Formative Assessment:
		OA.4
		OA.6
		OA.7
		OA.9
		MD.7b
		
		MP.2
		MP.3
		MP.5
		MP.6
		MP.7
		MP.8
			SAB p111 (E)
			SAB p112 (E)
			HW p115 (NE)
			R p116 (NE)	

2.7	**I can** • practice 6s, 7s, and 8s multiplications and divisions. **Formative Assessment:**	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 MP.1 MP.4 MP.5 MP.6 MP.7	SAB p115 (E) SAB p116 (E) SAB p117 (E) SAB p118 (E) HW p119 (NE) R p120 (NE)	
2.8	**I can** • build fluency with 0s, 1s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, and 10s multiplications and divisions. **Formative Assessment:**	OA.4 OA.5 OA.6 OA.7 OA.9 MD.7b MP.2 MP.3 MP.5 MP.6	SAB p119 (E) SAB p120 (E) HW p121 (NE) R p122 (NE)	
Quiz 1			**AG p29 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Vocabulary: expression, evaluate, multiple

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CC.3.OA.2: Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.	CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	CC.K-12.MP.4: Model with math.
CC.3.OA.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = � ÷ 3, 6 × 6 = ?. Understand properties of multiplication and the relationship between multiplication and division.	CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision.
CC.3.OA.5: Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)	CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.
CC.3.OA.6: Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. Multiply and divide within 100.	
CC.3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.	

CC.3.OA.8: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **CC.3.OA.9:** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends. **CC.3.NBT.3:** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
2.9	**I can** • represent and solve word problems using the four operations. **Formative Assessment:**	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 OA.8 MP.1 MP.3 MP.4 MP.5 MP.6	SAB p127 (E) SAB p128 (E) SAB p129 (E) SAB p130 (E) HW p123 (NE) R p124 (NE)	
2.10	**I can** • develop strategies for solving two step word problems. **Formative Assessment:**	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 OA.8 MP.1 MP.3 MP.5 MP.6 MP.8	SAB p131 (E) SAB p132 (E) SAB p133 (E) SAB p134 (E) HW p125 (NE) R p126 (NE)	
2.11	**I can** • develop strategies for solving two step word problems. **Formative Assessment:**	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 OA.8	SAB p135 (E) SAB p136 (E) HW p127 (NE) R p128 (NE)	

		MP.1 MP.3 MP.4 MP.5 MP.6		
2.12	**I can** • use place value and properties to multiply one digit numbers by multiples of 10. **Formative Assessment:**	OA.5 OA.6 OA.7 NBT.3 MP.3 MP.5 MP.6 MP.8	SAB p137 (E) SAB p138 (E) HW p129 (NE) R p130 (NE)	
2.13	**I can** • use strategies to fluently multiply and divide within 100. • solve two step word problems. **Formative Assessment:**	OA.1 OA.2 OA.3 OA.4 OA.6 OA.7 OA.8 MP.1 MP.2 MP.3 MP.4 MP.5 MP.6	SAB p145 (E) SAB p146 (E) HW p143 (NE) R p144 (NE)	
2.14	**I can** • build fluency with 0s, 1s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, and 10s multiplications and divisions. **Formative Assessment:**	OA.4 OA.6 OA.7 OA.8 MP.3 MP.5 MP.6	SAB p148 (E) SAB p149 (E) SAB p150 (E) SAB p151 (E) HW p145 (NE) R p146 (NE)	

		MP.8		
2.15	Mathematical Practices	OA.1 OA.2 OA.3 OA.4 OA.5 OA.7 OA.8 MP.1-8	SAB p153 (E) SAB p154 (E) HW p147 (NE) R p148 (NE)	
Quiz 2			**AG p30 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Unit 2: Mastery Loop ● About 3-5 days. Suggested date of completion:
Unit Test Objectives ● 2A Recall basic multiplications and divisions with 0s-10s and multiply single digit numbers by multiples of 10. ● 2B Identify and use patterns, properties, rules, and area to multiply and divide. ● 2C Use multiplication and division to solve real world word problems involving equal groups and arrays. ● 2D Solve real world two step word problems using the four operations.
Day 1: Final Formative Assessment - SAB p155-156
Day 2-4: Reteaching Activities – TE p290-292
Day 5: Assessment - Unit 2 Test AG p35-38

Unit 3: Measurement, Time, and Graphs
22-24 Days

Math Background:
- Research - TE p293Q-293R
- Background - TE p293S-293JJ

Learning Path:
- **For measurement, students:**
  - explore customary and metric measurement, time concepts, and graphing.
  - extend their measurement skills for length, capacity, weight, and mass.
  - measure lengths to a quarter inch and add, subtract, multiply, and divide measurements to solve problems.
- **For time, students:**
  - learn to tell time to the hour, half hour, quarter hour, five minutes, and one minute, as well as elapsed time.
  - represent time on a clock as well as a number line and use models to solve problems.
- **For graphing, students.**
  - explore categorical data displayed on tables, pictographs, bar graphs, and line plots.

Big Idea 1: Length, Capacity, Weight, and Mass
- About 6 days. Suggested date of completion:

Vocabulary: cup (c), inch (in), fluid ounce (fl oz), foot (ft), gallon (gal), gram (g), kilogram (kg), line segment, liter (L), liquid volume, mass, milliliter (mL), ounce (oz), pint (pt), pound (lb), quart (qt), ruler, weight

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CC.3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. **CC.3.MD.4:** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.	CC.K-12.MP.1: Make sense of problems and persevere in solving them. CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others. CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
3.1	**I can** • measure length in inches, half inches, and quarter inches with a ruler. **Formative Assessment:** Ask students to describe how to measure a line segment to the nearest ¼ inch. Students should describe that they would put the ruler underneath the line segment and line up 0 on the ruler with the left end of the line. Then count the repeated units to the other end of the line and decide which ¼ unit the line segment is closer to.	MD.4 MP.3 MP.5 MP.6 MP.8	SAB p159 (E) SAB p160 (E) SAB p161 (E) SAB p162 (E) HW p147 (NE) R p148 (NE)	Read 293BB-2933CC, 295FF-293HH Read teaching note 297 May need to review rounding. Important to model accuracy with drawings.
3.2	**I can** • use customary units of liquid volume. **Formative Assessment:** Ask students to name the units of liquid volume they worked with in this lesson from largest to smallest. Students should name gallon, quart, pint, cup, and fluid ounce.	OA.3 MD.2 MP.1 MP.2 MP.3 MP.4 MP.6 MP.7	SAB p163 (E) SAB p164 (E) SAB p165 (E) SAB p166 (E) HW p149 (NE) R p150 (NE)	Read 293BB-293CC, 293II Liquid volume = how much a container can hold. Make lots of connections to real life.
3.3	**I can** • use metric units of liquid volume. **Formative Assessment:** Ask students to explain the relationship between a liter and a milliliter. Students should explain that a liter contains 1,000mL. A liter is much larger than a milliliter.	OA.3 MD.2 MP.1 MP.2 MP.3 MP.4 MP.5 MP.6	SAB p167 (E) SAB p168 (E) HW p151 (NE) R p152 (NE)	Read 293BB-293CC, 293II Make sure students understand how everyday objects can be measured in mixed units.
3.4	**I can** • measure and estimate weight and mass.	OA.3 MD.2	SAB p169 (E) SAB p170 (E) SAB p171 (E)	Read: 293BB-293CC Explain ounces – a unit of weight and fluid ounce –

	Formative Assessment: Ask students to explain the strategies they use to estimate the weight or mass of an object. Students should explain that they use a benchmark with a similar size. They should include an example of a benchmark for ounce, pound, gram and kilogram in their explanation.	MP.1￼MP.2￼MP.3￼MP.4￼MP.5￼MP.6	SAB p172 (E)￼SAB p173 (E)￼SAB p174 (E)￼HW p153 (NE)￼R p154 (NE)	a unit of liquid volume or capacity.￼￼Try to bring in as many real objects to help students make connections.￼￼324 - good notes to read.
3.5	**I can**￼- solve word problems involving liquid volumes or masses using addition, subtraction, multiplication, and division.￼￼**Formative Assessment:** Ask students to explain how they know whether to add, subtract, multiply, or divide to solve a problem. Students should explain that if the problem asks for a total they would use addition or multiplication. If the groups are equal, it is easier to use multiplication to find the total. If the problem asks for how much more or less a quantity is than another, then subtract. If the problem asks about how many equal groups or how many in each group, dividing will solve the problem.	OA.3￼MD.2￼￼MP.1￼MP.3￼MP.4￼MP.6	SAB p175 (E)￼SAB p176 (E)￼HW p155 (NE)￼R p156 (NE)	Read: 293BB-293CC, 293II￼￼Steps:￼Interpret the problem￼Represent situation￼Solve problem￼Check
Quiz 1			**AG p42 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 2: Time and Date
- About 5 days. Suggested date of completion:

Vocabulary: A.M., elapsed time, P.M.

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.MD.1: Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
	CC.K-12.MP.2: Reason abstractly and quantitatively.
	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
	CC.K-12.MP.4: Model with math.
	CC.K-12.MP.5: Use appropriate tools strategically.
	CC.K-12.MP.6: Attend to precision.
	CC.K-12.MP.7: Look for and make use of structure.
	CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
3.6	**I can** • tell and write time to the minute, quarter hour, half hour, and hour. **Formative Assessment:** Show 1:25 on an analog clock. Ask students to say the time in two ways. Then ask them to write the time. Students should say the time as one twenty-five and twenty-five minutes after one. Students should write the time as 1:25.	MD.1 MP.3 MP.5 MP.6	SAB p179 (E) SAB p180 (E) SAB p181 (E) SAB p182 (E) HW p157 (NE) R p158 (NE)	Read: 293DD-293EE
3.7	**I can** • tell and write the time before and after the hour to the nearest minute. **Formative Assessment:** Write the time 4:37 on the board. Ask students to show the time on a clock. Then have students explain the two different ways the time can be expressed. Students should be able to explain that the time can be expressed as a time after the hour and as a time before the hour; in this case, thirty-seven minutes after 4 or twenty-three minutes before 5.	MD.1 MP.3 MP.5 MP.6	SAB p183 (E) SAB p184 (E) HW p159 (NE) R p160 (NE)	Read: 293DD-293EE Careful of past and passed, may need to explain. 348 - good teaching note.
3.8	**I can** • find elapsed time. **Formative Assessment:** Ask students to tell how they would find the elapsed time between 3:15 and 4:45. Students should be able to explain that they can find elapsed time by either counting the hours on a clock and adding the minutes or by using a number line with appropriate time intervals for the problem marked off.	MD.1 MP.1 MP.2 MP.3 MP.4 MP.5 MP.6	SAB p185 (E) SAB p186 (E) HW p161 (NE) R p162 (NE)	Read: 293DD-293EE Elapsed time is the amount of time that passes between the beginning and end of an activity – using a number line works well. Act it out will help build connections to this concept.

3.9	**I can** • solve word problems involving addition and subtraction of time intervals in minutes. **Formative Assessment:** Ask students to explain how they know to jump forward or backward when adding and subtracting on the number line. Students should explain that if they know the start time and the elapsed time and want to find the end time, they can find the start time and make forward jumps to add the times. If they know the end time and the elapsed time and need to find the start time, they will start with the end time and make backward jumps to subtract to find the start time.	MD.1 MP.1 MP.3 MP.4 MP.5 MP.6	SAB p187 (E) SAB p188 (E) HW p163 (NE) R p164 (NE)	Read: 293DD-293EE This lesson builds from yesterdays. So – if lesson 8 was hard – this lesson will present the same tool used just a little differently.
3.10	**I can** • solve word problems involving addition and subtraction of intervals of time. **Formative Assessment:** Ask students to explain how they would use a clock to add units of time. Students should explain that they start on the start time and add the times counting by hours or minutes around the face. Then look at the time where they end up on the clock.	MD.1 MP.1 MP.3 MP.4 MP.5 MP.6	SAB p189 (E) SAB p190 (E) HW p165 (NE) R p166 (NE)	Read: 293DD-293EE, 293II Again this builds from lesson 8 and 9. The number line is just a clock stretched out in a straight line – see if kids can figure this out – try not to tell them by putting the answer in your question. Story problems help connect the concept.
Quiz 2			**AG p43 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 3: Pictographs, Bar Graphs, and Line Plots
- About 6 days. Suggested date of completion:

Vocabulary: axes, bar graph, frequency table, horizontal axis, horizontal bar graph, key, line plot, pictograph, scale, tally chart, vertical axis, vertical bar graph

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CC.3.MD.1: Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.3.MD.3: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.3.MD.4: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.	CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically.
CC.3.NBT.2: Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	CC.K-12.MP.6: Attend to precision.
	CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
3.11	I can draw scaled pictographs and bar graphs and solve comparison problems using data in pictographs and bar graphs. **Formative Assessment:** Ask students to explain how they determine what a bar on a bar graph represents and to give an example using the graph about career choices on SAB 198. Students should explain that you can tell what a bar represents by looking at the title and the labels. For example, the bar next to Doctor represents the number of students who chose a doctor for their future career. Looking at the end of the bar and following the line to the scale shows that 60 students chose Doctor as their future career.	MD.3 NBT.2 MP.1 MP.2 MP.3 MP.4 MP.6	SAB p193 (E) SAB p194 (E) SAB p195 (E) SAB p196 (E) SAB p197 (E) SAB p198 (E) HW p167 (NE) R p168 (NE)	Read: 293FF-HH Repeated reasoning – using multiplication concepts to understand pictographs. Pictograph - more than one object is a picture. Picturegraph – one to one correspondence. Use the letter T to help understand horizontal and vertical. (Again making connections to knowns) 377 - excellent teaching note. Releasing the responsibility to students in this lesson..
3.12	I can analyze data to create horizontal and vertical bar graphs. **Formative Assessment:** Ask students to explain how they draw a bar graph. Students should include in their description that they first decide what the bars on the graph represent and then determine how to label the scale to best display the data.	MD.3 MP.1 MP.3 MP.4 MP.6 MP.7	SAB p199(E) SAB p200 (E) SAB p201 (E) SAB p202 (E) HW p169 (NE) R p170 (NE)	Read: 293FF-293HH Learning unfolding – students are practicing to become fluent here – these are all based on skills previously taught.
3.13	I can construct and analyze frequency tables and line plots. **Formative Assessment:** Ask students to name the different ways they have learned to represent and organize data to show how often something occurs and how they are different.	MD.4 MP.1 MP.3 MP.4 MP.5 MP.6	SAB p203 (E) SAB p204 (E) HW p171 (NE) R p172 (NE)	Read: 293FF-293HH Line plots also called dot plots. Can use dots or x's. All about frequency.

	Students should be able to explain that they can represent data in tally charts or frequency tables and in line plots. They should include in their explanation that while the tables use tally marks or number to show how often something occurs, the line plot uses dots placed above a number line.			Work on fractions here – help understand what ½ is!!!
3.14	I can solve word problems using data in line plats and scaled bar graphs. **Formative Assessment:** Ask students to describe how they can use data in a bar graph or a line plot to solve word problems. Students should be able to explain that they have to understand what the problem is asking them to do. Then they have to find the correct data in the bar graph or line plot and determine what operation to use. After solving the problem they need to check their work for reasonableness of the answer and that they have answered the question asked.	OA.3 MD.3 MD.4 MP.1 MP.3 MP.6 MP.8	SAB p205 (E) SAB p206 (E) HW p173 (NE) R p174 (NE)	Read: 293II Students will have different ways to get to the answers Watch for students thinking the number on the line instead of the number of dots…
3.15	Mathematical Practices	MD.1 MD.4 MP.1-8	SAB p207 (E) SAB p208 (E) HW p175 (NE) R p176 (NE)	Read: 293JJ ¼ and ½ can be worked on with this lesson.
Quiz 3			**AG p44 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Unit 3: Enrichment/Intervention Loop
● About 3-5 days. Suggested date of completion:

Unit Test Objectives
    ● 3A Tell and write time to the nearest minute.
    ● 3B Measure and estimate length, liquid volume, weight, and mass of objects.
    ● 3C Draw a pictograph, bar graph, and line plot.
    ● 3D Solve real world word problems involving intervals of time, liquid volume, weight, mass, and information from a graph.

Day 1: Final Formative Assessment - SAB p209-212
Day 2-4: Reteaching Activities – TE p408-412
Day 5: Assessment - Unit 3 Test AG p49-52

Alpena Montmorency Alcona Educational Service District
03 Pacing Guide
Unit 4: Multidigit Addition and Subtraction
24-26 Days

Math Background:
- Research - TE p413P-413Q
- Background - TE p413R-413JJ

Learning Path:
- **Students will:**
  - develop multidigit addition and subtraction methods that are meaningful and easily used by students.
  - build understanding of the base ten numeration system and develop the foundation to understand the grouping and ungrouping concepts for adding and subtracting.
  - use drawings to show grouping and ungrouping.

Big Idea 1: Understand Place Value and Rounding
- About 7 days. Suggested date of completion:

Vocabulary: Counting On strategy, digit, estimate, expanded form, hundreds, hundred box, Make a Ten strategy, ones, place value, place value drawing, round, Secret Code Cards, standard form, tens, ten stick, thousand bar

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100. **CC.3.NBT.2:** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	CC.K-12.MP.1: Make sense of problems and persevere in solving them. CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others. CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
4.1	**I can** • make and interpret place value drawings. **Formative Assessment:** Ask students to explain how the number 251 is different from the number 521. Students should explain that the values are different because a 5 in the hundreds place has a value greater than a 2 in the hundreds place. Students may use place value drawings with or without dots to show how the numbers are different.	NBT.1 NBT.2 MP.2 MP.3 MP.5 MP.6 MP.7	SAB p217 (E) SAB p218 (E) HW p177 (NE) R p178 (NE)	Read 413AA-413CC Place value drawings help conceptualize numbers and understand the relative sizes of place values Use drawings to compare numbers I highly encourage saying the value of each digit when writing any number… 76 – 7 tens, 6 ones – seventy-six
4.2	**I can** • identify the value of a digit. **Formative Assessment:** Ask students to give the value of the 8 in 384 and use the Secret Code Cards to show they are correct. Students should explain that the 8 is in the tens place and has a value of 80. Students should expand the Secret Code Cards to show 384 and to show that the 8 has a value of 80.	NBT.1 NBT.2 MP.2 MP.3 MP.5 MP.6 MP.7	HW p179 (NE) R p180 (NE)	Read 413AA-413BB Use of the cards is beneficial for students because cards emphasize how the position of the digit in the number determines the value of the digit Continue to emphasize place value language
4.3	**I can** • use an understanding of place value to group and ungroup multidigit numbers and solve word problems. • solve word problems. **Formative Assessment:** Ask students to explain how they can find how many baskets of 100 peaches can be made with 742 peaches and how many will be left over. Students should explain that the hundreds	NBT.1 NBT.2 MP.1 MP.3 MP.4 MP.5 MP.6 MP.7	SAB p219 (E) SAB p220 (E) HW p181 (NE) R p182 (NE)	Read 413AA-413BB Draw models to help understand structure Understanding grouping and ungrouping is very important to understanding multi-digit add/sub Any and all methods kids come up with are great to show to all kids

	place tells them how many baskets of 100 can be made: 7. The tens and ones tells how many will be left over: 42.			Use PV blocks if still struggling with concept
4.4	**I can** • identify numbers from scrambled place value names. • solve word problems. **Formative Assessment:** Ask students to explain how to use place value to add 700 + 500. Students should explain that 7 hundreds plus 5 hundreds is 12 hundreds or 1 thousand 2 hundred.	NBT.1 NBT.2 MP.1 MP.3 MP.4 MP.5 MP.6 MP.7	SAB p221 (E) SAB p222 (E) HW p183 (NE) R p184 (NE)	Read 413AA-413BB Teaching note 439!!
4.5	**I can** • round numbers to the nearest hundred to estimate sums and differences. **Formative Assessment:** Ask students to explain how to round a number with a 7 in the tens place to the nearest hundred. Students should explain that a number with a 7 in the tens place is closer to the next hundred, so the number should be rounded up to the next hundred.	NBT.1 MP.1 MP.2 MP.3 MP.5 MP.6 MP.8	SAB p223 (E) SAB p224 (E) HW p185 (NE) R p186 (NE)	Read 413CC-413II Use drawings and cards to round place on the number board to see the number line (find closest number with no ones or no tens and ones) Teaching note 444! Precision – make sure kids know definition – precise math language!
4.6	**I can** • round numbers to the nearest ten to estimate sums and differences. **Formative Assessment:** Ask students how to estimate a sum or difference by rounding and give an example. Students should explain using their example to first round the numbers to the nearest ten or nearest hundred. Then add or subtract the rounded numbers.	NBT.1 NBT,2 MP.2 MP.3 MP.5 MP.6	SAB p225 (E) SAB p226 (E) SAB p227 (E) SAB p228 (E) HW p187 (NE) R p188 (NE)	Read 413CC, 413II Use place value drawings and secret code cards if kids are still struggling Help kids understand when rounding you will end in a 0

Quiz 1			AG p56 (E)	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 2: Addition and Subtraction Strategies and Group to Add
- About 5 days. Suggested date of completion:

Vocabulary: expression, grouping, proof drawing, New Groups Above method, New Groups Below method, Show All Totals method

<u>Common Core State Standards for Math [CCSS-M]</u>	<u>Common Core Standards of</u> <u>Mathematical Practices [SMPs]</u>
CC.3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100. **CC.3.NBT.2:** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	CC.K-12.MP.1: Make sense of problems and persevere in solving them. CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others. CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
4.7	**I can** • discuss and apply multidigit addition methods. **Formative Assessment:** Ask students to explain how to add 614 and 293 numerically and with a proof drawing. Students should explain how to add using the New Groups Above method, the New Groups Below method or the Show All Totals method for addition, and make a proof drawing.	NBT.1 NBT.2 MP.1 MP.3 MP.5 MP.6	SAB p229 (E) SAB p230 (E) HW p189 (NE) R p190 (NE)	Read 413DD-413EE Once students understand that numbers are composed of ones, tens, hundreds… - decomposing and composing units in computations Encourage students to use PV drawings to add – this allows them to visualize the regrouping of 10 ones as 1 ten and 10 tens as 1 hundred *** _read lesson ahead of time*** All notes – read everything!_
4.8	**I can** • apply and discuss multidigit addition methods with place value alignment. **Formative Assessment:** Ask students how to subtract 150 – 70 by counting on by tens. Students should explain one of the three methods. Count on by tens: start with 70 and count on to 150. Place value: 7 tens + 8 tens = 15 tens. Or show the counting on with a drawing.	NBT.1 NBT.2 MP.1 MP.2 MP.3 MP.4 MP.5 MP.6	SAB p231 (E) SAB p232 (E) HW p191 (NE) R p192 (NE)	Read 413DD-413EE It is ok for kids to say 200 plus 100 plus 300 instead of 2 hundreds plus, 1 hundred plus, 3 hundreds – they need to use both Turn paper to use lines as place value columns Kids are use to only giving answers – encourage to explain 1 or 2 things about a problem = and ≠ together help clear up misconceptions – use "has the same value as" to help this too.
4.9	**I can** • decide when and how to group in multidigit addition.	NBT.2 MP.1	SAB p233 (E) SAB p234 (E) HW p193 (NE)	Read 413DD-413EE, 413II

		MP.2 MP.3 MP.6	R p194 (NE)	Students do not need to make place value drawings once they can demonstrate they have a solid understanding of pv and grouping and can explain their addition using pv language
	Formative Assessment: Ask students to explain when they need to group and how to group when adding. Students should explain that they need to group when the ones or tens are more than 9. They should also explain where to write the new group number for the method they are using.			
4.10	**I can** • identify and explain errors in addition. • solve word problems. **Formative Assessment:** Ask students to discuss examples of common errors they identified. Students should be able to explain that some common errors they found included forgetting to make a new hundred, writing the ones above the tens column and the new 1 ten in the ones column, forgetting to make a new ten, and forgetting to make a new ten and a new hundred.	NBT.2 MP.1 MP.2 MP.3 MP.4 MP.6 MP.7	SAB p235 (E) SAB p236 (E) HW p195 (NE) R p196 (NE)	Read 413DD-413EE, 413II
Quiz 2			**AG p57 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 3: Ungroup to Subtract
- About 9 days. Suggested date of completion:

Vocabulary: addend, Associative Property of Addition, Commutative Property of Addition, Identity Property of Addition, grouping, Math Mountain, subtract, total, ungrouping

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100. **CC.3.NBT.2:** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. **CC.3.OA.8:** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.3 **CC3.OA.9:** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.	CC.K-12.MP.1: Make sense of problems and persevere in solving them. CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others. CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
4.11	**I can** • explore methods for subtracting multidigit numbers. **Formative Assessment:** Ask students to explain a method they learned for subtracting multi-digit numbers. Students should explain the Expanded method, the Ungroup First method, or the Common U.S. method for subtracting.	NBT.2 MP.1 MP.2 MP.3 MP.4 MP.6 MP.7	SAB p159 (E) SAB p237 (E) SAB p238 (E) HW p197 (NE) R p198 (NE)	Read 413FF-413GG PV drawings show how to ungroup a hundred or ten – it shows the taking away The numeric method parallels the addition algorithm the kids learned Ungrouping units of greater value into units of lesser value – 1 ten into 10 ones Encourage ungrouping all at once before subtracting **490 & 493 read!**
4.12	**I can** • subtract with zeros in the top numbers. **Formative Assessment:** Ask students to explain a method to subtract across zeros in the top number. Students should be able to explain the process of ungrouping to subtract.	NBT.2 MP.1 MP.2 MP.3 MP.4 MP.6	SAB p239 (E) SAB p240 (E) SAB p241 (E) SAB p242 (E) HW p199 (NE) R p200 (NE)	Read 413FF-413GG Ungroup first using drawings helps connect the conceptual understanding of subtraction Subtract with 0's introduced early using methods in MX and using ungroup first – very successful and makes multi-digit sub less difficult Read 499-500 Use drawings when at the board – kids don't need to on homework if they really get it, but if they are demonstrating they need to use drawings at the board also!

4.13	**I can** • subtract using two different methods. **Formative Assessment:** Ask students to explain two subtraction methods-ungrouping from the left and ungrouping from the right. Students should be able to explain the process of ungrouping to subtract.	NBT.2 MP.1 MP.2 MP.3 MP.5 MP.6	SAB p243 (E) SAB p244 (E) HW p201 (NE) R p202 (NE)	Read 413FF-413GG *** READ 509
4.14	**I can** • relate grouping in addition and ungrouping in subtraction. **Formative Assessment:** Ask students to explain how addition and subtraction are related. Students should explain that one undoes the other. If the addend in an addition is subtracted from the sum, the result will be the other addend. The numbers in an addition and its related subtraction are the same. The proof drawings show the same numbers and the after grouping matches the before ungrouping and the before grouping matches the after ungrouping.	NBT.2 MP.1 MP.2 MP.3 MP.4 MP.6 MP.7 MP.8	SAB p245 (E) SAB p246 (E) HW p203 (NE) R p204 (NE)	Read 413FF-413HH Math mountains help conceptualize the relationship between the addition and subtraction Use math mountains to represent the relationship in word problems Use blocks if having trouble with understanding This lesson can help with mental math standard Label the mountain may help with understanding word problems
4.15	**I can** • practice and discuss subtraction methods. **Formative Assessment:** Ask students to explain how they decide when to ungroup in a subtraction problem, and to give an example of a subtraction where all three places need to be ungrouped. Students should explain that when the number in the place they are subtracting is larger than the one they are subtracting from, they need to ungroup a larger place. An example where all three places need to be ungrouped is 345 – 299.	NBT.2 MP.3 MP.6	SAB p247 (E) SAB p248 (E) HW p205 (NE) R p206 (NE)	Read 413II Word problems help with subtraction practice

4.16	**I can** • practice and discuss addition and subtraction methods. **Formative Assessment:** Ask students how they could subtract 398 from 600 mentally. Students should suggest subtracting 400 from 600 and adding 2 to 200 for an answer of 202.	NBT.2 MP.2 MP.3 MP.6 MP.7	SAB p249 (E) SAB p250 (E) HW p207 (NE) R p208 (NE)	Read 413HH-413II Addition table is used as a tool to understand patterns!!
4.17	**I can** • solve word problems that involve two or more steps and assess reasonableness. **Formative Assessment:** Write this problem on the board. Yvette had 18 mysteries and 15 biographies. Then she bought a group of 12 science fiction books. How many books does Yvette have now? Ask students to describe a strategy they would use to solve the problem. Students should be able to explain they would write the equation 18 + 15 + 12 = n. Next, use the commutative Property to switch the order of addends: 18 + 12 + 15 = n. Then use the Associate Property to group the numbers to make them easier to add.	OA.8 OA.9 NBT.1 NBT.2 MP.1 MP.3 MP.4 MP.5 MP.6 MP.7 MP.8	SAB p251 (E) SAB p252 (E) HW p209 (NE) R p210 (NE)	Read 413II Understanding commutative property you might want to give use real world problems 539
4.18	Mathematical Practices	NBT.1 NBT.2 MP.1-8	SAB p253 (E) SAB p254 (E) HW p211 (NE) R p212 (NE)	Read 413II
Quiz 3			**AG p58 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Unit 4: Enrichment/Intervention Loop
● About 3-5 days. Suggested date of completion:
Unit Test Objectives
● 4A Round whole numbers to estimate sums and differences and assess reasonableness of answers.
● 4B Add and subtract whole numbers.
● 4C Write a related subtraction word problem for an addition problem and vice versa.
● 4D Solve a variety of real world problems.
Day 1: Final Formative Assessment - SAB p255-256
Day 2-4: Reteaching Activities – TE p552-554
Day 5: Assessment - Unit 4 Test AG p59-62

Alpena Montmorency Alcona Educational Service District
03 Pacing Guide

Unit 5: Write Equations to Solve Word Problems
16-18 Days

Math Background:
- Research - TE p555O-555P
- Background - TE p555Q-555JJ

Learning Path:
- **Students will:**
  - study problem solving and problem types.
  - use their knowledge of carrying out operations, inverse operations, reading problems, and properties of operations to develop proficiency in solving one step and two step problems..

Big Idea 1: Understand Place Value and Rounding

- About 7 days. Suggested date of completion:

Vocabulary: Add To, addend, compare, comparison bars, comparison problem, equal to (=), equality, equation, expression, greater than (>), inequality, less than (<), Put Together/Take Apart, situation equation, solution equation, Take From, total, unknown addend, unknown amount, unknown start

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. **CC.3.OA.4:** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \blacklozenge \div 3$, $6 \times 6 = ?$. **CC.3.NBT.1:** Use place value understanding to round whole numbers to the nearest 10 or 100. **CC.3.NBT.2:** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	CC.K-12.MP.1: Make sense of problems and persevere in solving them. CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others. CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
5.1	**I can** • solve addition and subtraction word problems. **Formative Assessment:** Ask students to summarize what methods they learned for solving addition and subtraction word problems. Present the following problem, questions, and instructions to students: Cory had 12 grapes. He at 4 of them. How many grapes does he have now? • Is the problem an Add To or a Take From problem? Then have students: • Draw a Math Mountain for the problem • Write an equation for the problem. Solve the problem.	NBT.2 MP.1 MP.2 MP.3 MP.4 MP.6 MP.7 MP.8	SAB p259 (E) SAB p260 (E) SAB p261 (E) SAB p262 (E) HW p213 (NE) R p214 (NE)	
5.2	**I can** • represent and solve word problems with unknown addends or unknown factors. **Formative Assessment:** Have volunteers give a word problem with an unknown addend and another problem with an unknown factor. Then ask students to write an equation to solve each problem.	NBT.2 OA.3 OA.4 MP.1 MP.2 MP.3 MP.4 MP.6 MP.7	SAB p263 (E) SAB p264 (E) SAB p265 (E) SAB p266 (E) HW p215 (NE) R p216 (NE)	Read 555C-555FF Students may need to write both a situation and solution equation to solve **need to know math mountains to move faster through activity** Associate 8 equations (not 4) with a math mountain Lessons 1-3 will identify addends and the total and on relationship among these 3 quantities to find

				unknown number **this activity should show you how kids are solving the problems – focus all on discussion NOT instruction Use = and ≠ to explain what equals means! …has the same value….
5.3	**I can** • solve word problems with unknown starts. • write situation and solution equations for word problems. **Formative Assessment:** Ask students to explain what a situation equation and a solution equation are. Students should explain that a situation equation shows the order of the information in the problem and a solution equation shows the operation that can be used to solve the problem.	NBT.2 OA.3 OA.4 MP.1 MP.2 MP.3 MP.6 MP.7	SAB p267 (E) SAB p268 (E) SAB p269 (E) SAB p270 (E) HW p217 (NE) R p218 (NE)	Read 555CC-555FF You will need lesson 1 homework page 213
5.4	**I can** • solve comparison word problems. **Formative Assessment:** Write a comparison problem with an unknown difference on the board. Students should draw comparison bars then write an equation to solve the problem.	NBT.1 NBT.2 MP.1-8	SAB p271 (E) SAB p272 (E) SAB p273 (E) SAB p274 (E) HW p219 (NE) R p220 (NE)	Read 555CC-555FF Make sure students know the if they are solving for the total or unknown addend This is the first time working on unknown start problems – a lot more practice will happen (encourage them to rewrite equation so it is easier to solve)
5.5	**I can** • represent and solve comparison word problems with misleading language. **Formative Assessment:** Ask students to explain how they can make sense of a problem	NBT.2 MP.1 MP.3 MP.6 MP.7	SAB p275 (E) SAB p276 (E) HW p221 (NE) R p222 (NE)	Read 555CC-555FF Make sure kids know comparing numbers you start the place farthest left because that has the greatest value

	with misleading language. Students should be able to explain that if they can't use the problem as it is stated to determine who has more or fewer, they can find the comparison statement in the problem and restate it in terms of the other person in the problem.			Focus on language for comparison problems – more less and be able to reverse the way it can be stated Also bars do not have to be drawn to scale!! Just the one that is longer looks longer Finding unknown amounts instead of differences the students will need to determine who has more and who has fewer (SAB 272) This will help them decide what number is added or subtracted Comparison bars are used in MX in the standards it is the same as the tape diagram
5.6	**I can** • represent and solve word problems with extra, hidden, or not enough information. **Formative Assessment:** Ask students to write and solve one example each of problems with extra, hidden, or not enough information.	NBT.2 MP.1 MP.3 MP.6	SAB p277 (E) SAB p278 (E) SAB p279 (E) SAB p280 (E) HW p223 (NE) R p224 (NE)	Read 555FF-555GG Crossing out extra info is good – just be careful not to cross out too much! Highlighters work well too
Quiz 1			**AG p70 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 2: Solve Two Step Word Problems

- About 6 days. Suggested date of completion:

Vocabulary: Associative Property of Addition, Associative Property of Multiplication, Commutative Property of Addition, Commutative Property of Multiplication, Distributive Property of Multiplication, Identity Property of Addition, Identity Property of Multiplication, Zero Property of Multiplication

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. **CC.3.OA.8:** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **CC.3.NBT.2:** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	CC.K-12.MP.1: Make sense of problems and persevere in solving them. CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others. CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
5.7	**I can** • use addition, subtraction, multiplication, and division to solve two step problems. **Formative Assessment:** Ask students how they know a problem is a two step problem. Students' explanations should include that when they read the problem to make sense of it, they realize that a single number is needed in order to do the second step, which will solve the problem and answer the questions asked.	OA.3 OA.8 MP.1 MP.3 MP.6	SAB p281 (E) SAB p282 (E) HW p225 (NE) R p226 (NE)	Read 555HH-555II
5.8	**I can** • solve word problems requiring two steps. **Formative Assessment:** Ask students to write an equation involving two steps. Then explain how they could assess the reasonableness of the answer using a mental math strategy. Students should explain the strategy they used for their numbers.	OA.3 OA.8 NBT.2 MP.1 MP.2 MP.3 MP.4 MP.6 MP.7	SAB p283 (E) SAB p284 (E) SAB p285 (E) SAB p286 (E) HW p227 (NE) R p228 (NE)	Read 555HH-555II Students write equations to represent problems solved using 2 steps – may need parentheses to decide which operation is performed first – encourage drawings!!! Break apart strategy – breaks numbers apart by place value – then add the differences
5.9	**I can** • solve word problems requiring two operations. **Formative Assessment:** Write this problem on the board. Jared has 2 boxes in his room. Each box contains a number of trays, and each tray contains 2 miniature trucks. Jared has 16 trucks in all. Ask students to write an equation with a variable to solve the problem and explain how they would solve it. Students should write $2 \times t \times 2 = 16$, $t = 4$.	OA.3 OA.8 NBT.2 MP.1 MP.3 MP.4 MP.8	SAB p287 (E) SAB p288 (E) HW p229 (NE) R p230 (NE)	Read 555HH-555II Guide students through an in depth review of properties of operations with a focus on how these make it easier Formal names of properties are not necessary, but using them correctly is! Pictures, objects diagrams help some kids!!

5.10	**I can** • solve word problems using two step equations and decide if answers are reasonable. **Formative Assessment:** Ask students to choose one of the problems on a Student Book page 290 and write a two step equation to represent the problem. Students should be able to explain how they decided which operations to use in the equation and which number is the unknown number they are trying to find.	OA.8 MP.1 MP.3 MP.4 MP.6	SAB p289 (E) SAB p290 (E) HW p231 (NE) R p232 (NE)	Read 555HH-555II
5.11	Mathematical Practices	OA.3 OA.8 NBT.2 MP.1-8	SAB p291 (E) SAB p292 (E) HW p233 (NE) R p234 (NE)	Read 555JJ
Quiz 2			**AG p71 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Unit 5: Enrichment/Intervention Loop
● **About 3-5 days. Suggested date of completion:**

Unit Test Objectives
- 5A Solve a variety of word problems involving addition and subtraction within 1,000, unknown factors, extra or hidden information, and identify problems with not enough information.
- 5B Solve real world two step word problems using the four operations and assess the reasonableness of answers.

Day 1: Final Formative Assessment - SAB p293-294

Day 2-4: Reteaching Activities – TE p648-650

Day 5: Assessment - Unit 5 Test AG p72-75

Unit 6: Polygons, Perimeter, and Area
16-18 Days

Math Background:
- Research - TE p651O-651P
- Background - TE p651Q-651LL

Learning Path:
- **Students will:**
  - study the attributes of triangles, quadrilaterals, and other polygons.
  - find perimeter and area of various shapes and delve into concepts of area of rectangular figures.
  - explore the relationship between perimeter and area by investigating rectangles with the same perimeter and different areas and rectangles with the same area and different perimeters.

Big Idea 1: Analyzing Triangles and Quadrilaterals

- About 5 days. Suggested date of completion:

Vocabulary: angle, concave, convex, decagon, hexagon, octagon, opposite, parallel, parallelogram, pentagon, polygon, quadrilateral, ray, rectangle, rhombus, right angle, square, trapezoid

Common Core State Standards for Math [CCSS-M]	**Common Core Standards of Mathematical Practices [SMPs]**
CC.3.G.1: Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. **CC.3.G.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.	CC.K-12.MP.1: Make sense of problems and persevere in solving them. CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others. CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
6.1	**I can** • understand the relationship among angles, triangles, and polygons. **Formative Assessment:** Ask students what characteristics all triangles share and how they can be grouped into smaller categories. Students should explain that all triangles have three sides and three angles. Triangles can be grouped into smaller groups by the number of sides of equal length or by the types of angles.	G.1 G.2 MP.2 MP.3 MP.5 MP.6	SAB p297 (E) SAB p298 (E) SAB p299 (E) SAB p300 (E) SAB p301A (E) SAB p302 (E) SAB p303a (E) HW p235 (NE) R p236 (NE)	Read 651Z, 651AA-651BB This lesson established a foundation for the rest of the work in this unit by providing the vocab needed to discuss geometric concepts, explain ways to classify and name polygons, and how some figures composed and decomposed triangles 2 days! Classify angles and triangles Understand triangles then work with quadrilaterals Then move into polygons Could use ruler to help with angle sides Teaching note page 655
6.2	**I can** • explore the relationships among parallelograms, rectangles, squares, rhombuses, and trapezoids. **Formative Assessment:** Ask students to draw a quadrilateral and describe it. Students' descriptions should include the sides that are of equal length, the sides that are parallel, and if there are any right angles.	G.1 MP.3 MP.6 MP.7	SAB p303 (E) SAB p304 (E) SAB p305 (E) SAB p306 (E) HW p237 (NE) R p238 (NE)	Read 651Z, 651CC-651DD Vocabulary is huge – related to names and attributes Teaching note 669

6.3	**I can** • draw quadrilaterals. **Formative Assessment:** Ask students to name a subgroup of quadrilaterals and give its attributes. For example, students may name rectangles and give the attributes of opposite sides parallel and the same length and four right angles.	G.1 MP.5 MP.6	SAB p307 (E) SAB p308 (E) SAB p309 (E) SAB p310 (E) HW p239 (NE) R p240 (NE)	Read 651Z Drawing quad's help clarify the relationship among different quad's – helps connect attributes and properties of geometric shapes
6.4	**I can** • describe the relationships among various types of quadrilaterals and draw quadrilaterals that match a description. **Formative Assessment:** Ask students to name the subcategories of quadrilaterals. Students should name parallelograms, rectangles, squares, rhombuses, and trapezoids.	G.1 MP.3 MP.5 MP.6 MP.7 MP.8	SAB p311 (E) SAB p312 (E) SAB p313 (E) SAB p314 (E) SAB p315a (E) HW p241 (NE) R p242 (NE)	Read 651Z, 651CC-651DD Drawing different quads to match given descriptions requires them to take more than one attribute at a time into considerations Use a category diagram to classify a set of quads
Quiz 1			**AG p83 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 2: Area and Perimeter

- About 8 days. Suggested date of completion:

Vocabulary: area, decompose, dimensions, perimeter, rectilinear polygon, side length, tangram, unit square

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.MD.5: Recognize area as an attribute of plane figures and understand concepts of area measurement.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.3.MD.5a: Recognize area as an attribute of plane figures and understand concepts of area measurement. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.	CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.3.MD.5b: Recognize area as an attribute of plane figures and understand concepts of area measurement. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.3.MD.6: Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	CC.K-12.MP.4: Model with math.
CC.3.MD.7a: Relate area to the operations of multiplication and addition. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.	CC.K-12.MP.5: Use appropriate tools strategically.
CC.3.MD.7b: Relate area to the operations of multiplication and addition. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	CC.K-12.MP.6: Attend to precision.
	CC.K-12.MP.7: Look for and make use of structure.
CC.3.MD.7c: Relate area to the operations of multiplication and addition. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning.	CC.K-12.MP.8: Look for and express regularity in repeated reasoning.
CC.3.MD.7d: Relate area to the operations of multiplication and addition. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	
CC.3.MD.8: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	

CC.3.G.1: Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g.,quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
6.5	**I can** • develop concepts of perimeter and area. **Formative Assessment:** Ask students to explain what the perimeter and area of a figure are and to tell how both attributes can be measured.	MD.5 MD.5a MD.5b MD.6 MD.7 MD.7a MD.7b MD.8 MP.2 MP.3 MP.5 MP.6 MP.7	SAB p317 (E) SAB p318 (E) SAB p319 (E) SAB p320 (E) HW p243 (NE) R p244 (NE)	Read 651EE-651HH Students recognize area as an attribute of plane figures to guide them to develop ways to measure area – tile with unit squares, see number of unit squares as product of side lengths, see area model as distributive proper of multiplication over addition This unit builds on unit 3 re-establishing the concept of mult. 2 factors
6.6	**I can** • use side lengths in area and perimeter calculations and problems. **Formative Assessment:** Ask students to describe how to find an unknown side length when the perimeter or the area of a rectangle is known.	MD.6 MD.7 MD.7a MD.7b MD.7c MD.8 MP.1 MP.2 MP.3 MP.5 MP.6	SAB p321 (E) SAB p322 (E) SAB p323 (E) SAB p324 (E) HW p245 (NE) R p246 (NE)	Read 651EE-651HH
6.7	**I can** • recognize that rectangles with the same perimeter can have different areas. • recognize that rectangles with the same area can have different perimeters. **Formative Assessment:** Ask students to describe if they were given a rectangle with a	MD.5 MD.5a MD.5b MD.7b MD.8 MP.2 MP.3	SAB p325 (E) SAB p326 (E) HW p247 (NE) R p248 (NE)	Read 651EE-6512HH Relate perimeter and area as they draw on a dot array all the possible rectangles with a given perimeter with whole unit side lengths Notice-– for given area the longest skinniest

	certain perimeter, how they would draw it so that it has the greatest area. Suggest they use a perimeter of 18 inches to help them explain.	MP.6 MP.8		rectangle has the greatest perimeter and the most square-like rectangle has the least perimeter Notice – for given perimeter, the longest skinniest rectangle has the least area and the most square like rectangle has the greatest area
6.8	**I can** • find the area of figures by decomposing them into rectangles. **Formative Assessment:** Draw a rectilinear figure on the class MathBoard or on Centimeter Dot Paper and ask students to explain two different ways to decompose it to find the area.	MD.7b MD.7d MP.2 MP.3 MP.6	SAB p327 (E) SAB p328 (E) SAB p329 (E) SAB p330 (E) HW p249 (NE) R p250 (NE)	Read 651II Distributive property! Work with l-shaped figures helps see that area is additive – add the area of 2 parts gives same as counting all the unit squares in the figure Understand inverse relationship of add/sub to find the length of a side given the length of the other side and perimeter and use what know about inverse of mult/div – to find the length of the other side. Make sure you refer to the unknown side length as UNKNOWN not missing, because its part of the rectangle, its length is just not known
6.9	**I can** • use concepts of perimeter and area to solve real world problems. **Formative Assessment:** Ask students to write examples of and explain how they would solve a real world area and a real world perimeter problem.	MD.5 MD.7 MD.7b MD.7d MD.8 MP.1 MP.2	SAB p331 (E) SAB p332 (E) SAB p333 (E) SAB p334 (E) HW p251 (NE) R p252 (NE)	Read 651EE-651HH There are many ways to solve these problems – make sure to use the SOLVE AND DISCUSS to hear all the ideas – use drawings, clear language

		MP.3 MP.4 MP.6		
6.10	**I can** • use tangram shapes to find areas of figures. **Formative Assessment:** Ask students to explain how area and perimeter can be used to describe figures and to tell what kinds of problems can be solved by finding the area and perimeter of rectangles.	MD.5 MD.6 MP.3 MP.4 MP.5 MP.6 MP.7 MP.8	SAB p335 (E) SAB p336 (E) SAB p337 (E) SAB p338 (E) SAB p339 (E) SAB p340 (E) HW p253 (NE) R p254 (NE)	Read 651JJ-651KK Once familiar with shapes, and can reproduce a given figure, then use to construct and calculate their areas, this helps reinforce the concept that area is additive This is designed to make the visual connection between the whole figure and smaller figures that compose it – then use what know of smaller figures and compose/decompose larger ones
6.11	Mathematical Practices	MD.7d MD.8 G.1 MP.1-8	SAB p341 (E) SAB p342 (E) HW p255 (NE) R p256 (NE)	Read 651KK
Quiz 2			**AG p84 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Unit 6: Enrichment/Intervention Loop
● About 3-5 days. Suggested date of completion:

Unit Test Objectives
- 6A Sort quadrilaterals into subcategories by their shared attributes and draw examples of quadrilaterals given descriptions.
- 6B Express the area of a shape partitioned into equal areas as a unit fraction.
- 6C Understand the concept of area and find the area of a figure.
- 6D Solve real world problems involving perimeter and area.

Day 1: Final Formative Assessment - SAB p343-346

Day 2-4: Reteaching Activities – TE p738-742

Day 5: Assessment - Unit 6 Test AG p85-88

Unit 7: Explore Fractions
14-16 Days

Math Background:
- Research - TE p743O-743P
- Background - TE p743Q-743FF

Learning Path:
- **Students will:**
  - study fraction concepts beginning with unit fractions and what they represent.
  - learn how non-unit fractions are built from unit fractions.
  - learn to count or add to find the value of a fraction.
  - model fractions in various ways as they compare fractions and find equivalent fractions.

Big Idea 1: Fraction Concepts

- About 6 days. Suggested date of completion:

Vocabulary: fraction, denominator, locate, number line, numerator, unit fraction, whole

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.NF.1: Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.3.NF.2a: Understand a fraction as a number on the number line; represent fractions on a number line diagram. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line.	CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.3.NF.2b: Understand a fraction as a number on the number line; represent fractions on a number line diagram. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.3.NF.3d: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically. CC.K-12.MP.6: Attend to precision.
CC.3.G.2: Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.	CC.K-12.MP.7: Look for and make use of structure. CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
7.1	**I can** • develop a conceptual understanding of unit fractions and how they are used to build other fractions. **Formative Assessment:** Ask students to explain what unit fractions are and how they are used to build other fractions.	G.2 NF.1 MP.2 MP.3 MP.5 MP.6 MP.7 MP.8	SAB p349a (E) SAB p349 (E) SAB p350 (E) SAB p351 (E) SAB p352 (E) HW p257 (NE) R p258 (NE)	Read 743Z-743BB use shapes to explore the meaning of a unit fraction = 1/**d** means the quantity of 1 part when a whole is made into **d** equal parts Understanding how to decompose shapes is HUGE to the foundation of fractions You are connecting geometry and number concepts in this lesson!!! (watch out for #8 rectangle/triangle mix up) – precision huge! Denominator (d = down) Numerator (u = up) **Common error READ 749 note and 752!!** Fraction bars used to really understand the concept that a unit fraction with a smaller denominator is greater than a unit fraction with a larger denominator If a student understands that n/d is the quantity formed by n equal parts of size 1/d – then they can focus on fractions as being composed of unit fractions added together the same as whole numbers as being composed of ones added together So don't focus on the difference between fractions as less than 1 and fractions equal to or greater then 1 Instead kids will see that they can count the number

				of equal parts in a fraction or they can add the unit fractions to find the value of that fraction Shading the bars in this lesson is the first step toward comparing fractions that you will do in lesson 4 **Don't over teach activity 2 read 751 teaching note**
7.2	**I can** • use fraction bars and number lines to represent fractions. **Formative Assessment:** Ask students to use examples to explain how both fraction bars and number lines can be used to show fractions.	G.2 NF.1 NF.2a NF.2b MP.1 MP.3 MP.5 MP.6 MP.7 MP.8	SAB p353 (E) SAB p354 (E) HW p259 (NE) R p260 (NE)	Read 743Z-743BB Elicit **from kids** the importance of knowing what the whole is use a ruler to understand number line – spaces are equal spaces – a ruler is a scale is a number line – a fraction is a number so it can go on a number line Model fractions with bars and number lines Number line – because you can find them on a number line, they must be a number Key concept is to think of the interval from 0-1 as a whole AND partition the whole into as many same size parts as the denominator THEN locate a particular fraction Careful about explaining that it is not the marks BUT the DISTANCE between the marks they COUNT
7.3	**I can** • locate fractions on the number line. **Formative Assessment:** Ask students to use examples to explain how to locate fractions on the number line.	NF.2a NF.2b MP.2 MP.3 MP.5	SAB p355 (E) SAB p356 (E) SAB p357 (E) SAB p358 (E) HW p261 (NE) R p262 (NE)	Read 743Z-743BB Precision important when drawing number lines underneath

		MP.6 MP.8		Make sure kids identify where point 1 is located on SAB number lines
7.4	**I can** • use fraction bars and number lines to compare unit fractions. **Formative Assessment:** Ask students to describe two methods they can use to compare unit fractions.	NF.2a NF.2b NF.3d MP.2 MP.3 MP.6	SAB p359 (E) SAB p360 (E) HW p263 (NE) R p264 (NE)	Read 743CC-743DD Compare unit fractions – Using the fraction bars - all about the patterns and observing the size of the pieces Number line – all about noticing the position on the number line relates to the denominator of the fraction Math talk that says all parts of what comparing means really helps – have kids explain what compare means, what greater means… Continue to reinforce fractions are numbers and can be represented a lot of ways (bars, lines, symbols)
7.5	**I can** • use fraction circles to develop understanding of comparing fractions with the same denominator or with the same numerator. **Formative Assessment:** Ask students to explain how they can compare fractions that have the same denominator and how they can compare fractions that have the same numerator.	NF.3d MP.2 MP.3 MP.5 MP.6 MP.8	SAB p361a (E) SAB p361 (E) SAB p362 (E) HW p265 (NE) R p266 (NE)	Read 743CC-743DD compare non unit fractions – fraction circles – use reasoning about size– emphasizing that in order to compare fractions the wholes must be same size
Quiz 1			**AG p96 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 2: Equivalent Fractions
- **About 5 days. Suggested date of completion:**

Vocabulary: denominator, equivalence chain, equivalent, equivalent fractions, numerator

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.3.NF.1: Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.3.NF.2a: Understand a fraction as a number on the number line; represent fractions on a number line diagram. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line.	CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.3.NF.2b: Understand a fraction as a number on the number line; represent fractions on a number line diagram. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.3.NF.3a: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically.
CC.3.NF.3b: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model.	CC.K-12.MP.6: Attend to precision. CC.K-12.MP.7: Look for and make use of structure.
CC.3.NF.3c: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.	CC.K-12.MP.8: Look for and express regularity in repeated reasoning.
CC.3.NF.3d: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	
CC.3.G.2: Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.	

Lesson	Learning Target	CCSM And SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
7.6	**I can** • develop understanding of equivalent fractions. **Formative Assessment:** Ask students how using fraction strips can help them to find equivalent fractions. Students should explain that fraction strips show that two fractions with different numerators and denominators can name the same amount.	NF.3a NF.3b MP.2 MP.3 MP.5 MP.6 MP.7 MP.8	SAB p363a (E) SAB p363 (E) SAB p364 (E) HW p267 (NE) R p268 (NE)	Read 743EE folding papers strips that represent 1 emphasizes that only fractions with same size whole can be compared – this builds to equivalent fractions (if you have fraction tiles, these are great to use) Number lines – same outcome as using strips, and reinforces that fractions are numbers Equivalent fractions – kids only start the understanding in grade 3 – kids should discover that many fractions label the same point on a number line – therefore they are equal…
7.7	**I can** • find two or more equivalent fractions using number lines. **Formative Assessment:** Ask students to use examples to explain how to use number lines to find equivalent fractions.	NF.3a NF.3b MP.2 MP.3 MP.5 MP.6 MP.7 MP.8	SAB p365 (E) SAB p366 (E) HW p269 (NE) R p270 (NE)	Read 743EE
7.8	**I can** • use fraction concepts to solve real world problems. **Formative Assessment:** Ask students to explain how they can use their understanding of unit fractions, comparing fractions, and	NF.2a NF.2b NF.3a NF.3b NF.3c NF.3d	SAB p367 (E) SAB p368 (E) HW p271 (NE) R p272 (NE)	Read 743FF

	equivalent fractions to solve word problems. Students should include the following points in their explanation: unit fractions are equal parts of the fraction and you can put them together to make other fractions; when comparing fractions with the same denominators, the one with the greater numerator is the greater fraction; when comparing fractions with the same numerators, the one with the greater denominator is the lesser fraction; and equivalent fractions are fractions that represent the same part of the whole.	MP.1 MP.2 MP.3 MP.4 MP.6		
7.9	Mathematical Practices	NF.1 NF.3a NF.3b NF.3d G.2 MP.1-8	SAB p369 (E) SAB p370 (E) HW p273 (NE) R p274 (NE)	Read 743FF
Quiz 2			**AG p97 (E)**	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Unit 7: Enrichment/Intervention Loop ● About 3-5 days. Suggested date of completion:
Unit Test Objectives ● 7A Write a fraction and unit fraction for a part of a whole and for a number on a number line. ● 7B Write equivalent fractions including fractions that are equivalent to whole numbers. ● 7C Compare two fractions with the same denominator or the same numerator. ● 7D Solve real world word problems involving fractions.
Day 1: Final Formative Assessment - SAB p371-372
Day 2-4: Reteaching Activities – TE p818-820
Day 5: Assessment - Unit 7 Test AG p98-101