Alpena Montmorency Alcona Educational Service District
04 Pacing Guide

Unit 1: Place Value and Multidigit Addition and Subtraction
20-22 Days

Math Background:
- Research - TE p1Q-1S
- Background - TE p1T-1JJ
- Learning Community - TE p1KK-1NN

Learning Path:
- **Students broaden and deepen experiences with numbers through one million. Students gain understanding:**
  - of addition and subtraction and the relationship between the two operations.
  - in estimation and mental math (validating their answers).

Progressions:

Last year, my students...	In my class, students will...	Next year, my students will...
- used place value drawings to represent numbers. - used place value drawings to add and subtract whole numbers - explored different methods to add and subtract whole numbers	- use place value drawings to help them conceptualize numbers and understand the relative sizes of place values - use different methods to add and subtract whole numbers	- use expanded form with powers of ten to represent numbers - use concrete models or drawings to represent adding and subtracting decimals - use different methods to add and subtract decimals

Big Idea 1: Place Value to One Million

- About 6 days. Suggested date of completion:

Vocabulary: digit, dot array, expanded form, greater than (>), less than (<), place value drawings, standard form, word form

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.NBT.1: Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division. **CC.4.NBT.2:** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. **CC.4.NBT.3:** Use place value understanding to round multi-digit whole numbers to any place.	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
1.1 TE p1-10	**I can** • identify the place value of numbers through thousands. **Formative Assessment:** Ask students to explain the "10 times" pattern for ones, tens, hundreds, ad thousands. Students should be able to explain that each place value is 10 times as great as the value of the previous place.	NBT.1 SMP2 SMP3 SMP5 SMP6 SMP7	SAB p3 (E) SAB p4 (E) SAB p5 (E) SAB p6 (E) HW p1 (NE) R p2 (NE)	
	Lesson 1.1 Notes			
1.2 TE p11-18	**I can** • read, write, and model numbers to thousands **Formative Assessment:** Ask students to describe how to use place value to write a number in standard, word, and expanded forms.	NBT.1 NBT.2 SMP1 SMP3 SMP5 SMP6 SMP7	SAB p6a (E) SAB p6b (E) SAB p7 (E) SAB p8 (NE) HW p3 (NE) R p4 (NE)	
	Lesson 1.2 Notes			
1.3 TE p19-28	**I can** • round multi-digit whole numbers by value of the digits in each place. • compare multi-digit whole numbers by value of the digits in each place. **Formative Assessment:** Ask students to explain how to use place value to round multidigit numbers. Students should be able to	NBT.2 NBT.3 SMP2 SMP3 SMP4 SMP5 SMP6 SMP8	SAB p9 (E) SAB p10 (E) HW p5 (NE) R p6 (NE)	

	explain that when rounding, you look to the place to the right of the place to which you are rounding to determine which way to round, and then all digits to the right of the rounding place change to zeros. When comparing two numbers, start with the greatest places and move to the right until you find places with numbers that are different.			
	Lesson 1.3 Notes			
1.4 TE p29-36	**I can** • identify the place value of numbers to one million **Formative Assessment:** Ask students to describe the role of a comma when reading and writing multidigit whole numbers. Students should be able to verbalize that commas separate groups of three digits from right to left and each group is read as hundreds, tens, and ones followed y the group name except for the one group.	NBT.1 NBT.2 SMP2 SMP3 SMP5 SMP6 SMP7 SMP8	SAB p11 (E) SAB p12 (E) HW p7 (NE) R p8 (NE)	
	Lesson 1.4 Notes			
1.5 TE p37-44	**I can** • compare multidigit whole numbers. • round multidigit whole numbers. **Formative Assessment:** Ask students to write a six-digit number and explain how to use place value to round the number to the nearest ten thousand. Then ask students to use place value to compare the rounded number to the original number. Have hem use the symbols >,<, or = to compare the two numbers.	NBT.2 NBT.3 SMP1 SMP2 SMP3 SMP6 SMP8	SAB p13 (E) SAB p14 (E) HW p9 (NE) R p10 (NE)	

	Lesson 1.5 Notes			
Quiz 1			AG p16 (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 with Greater Numbers
- About 4 days. Suggested date of completion:

Vocabulary: digit, groups, sum

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.4.NBT.3:** Use place value understanding to round multi-digit whole numbers to any place. **CC.4.NBT.4:** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. **CC.4.MD.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	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
1.6 TE p45-54	**I can** • add four-digit numbers. **Formative Assessment:** Ask students to explain how they know when to make new groups in addition. Students should explain that they must make a new group when one place or column in addition has a sum greater than or equal to 10.	NBT.4 MD.2 SMP1 SMP2 SMP3 SMP5 SMP6 SMP8	SAB p15 (E) SAB p16 (E) HW p11 (NE) R p12 (NE)	
	Lesson 1.6 Notes			
1.7 TE p55-60	**I can** • add multidigit numbers **Formative Assessment:** Ask students to share the methods they use when adding greater numbers.	NBT.4 SMP1 SMP3 SMP6 SMP8	SAB p17 (E) SAB p18 (E) HW p13 (NE) R p14 (NE)	
	Lesson 1.7 Notes			
1.8 TE p61-68	**I can** • add using estimation and mental math. **Formative Assessment:** Ask students to explain how they can use estimation and mental math to solve addition problems. Students should verbalize that they can adjust an estimated total to find an exact total, and they can look for "easy" combinations of numbers to add.	OA.3 NBT.3 NBT.4 SMP1 SMP2 SMP3 SMP6	SAB p19 (E) SAB p20 (E) HW p15 (NE) R p16 (NE)	

	Lesson 1.8 Notes			
Quiz 2			AG p17 (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 6 days. Suggested date of completion:

Vocabulary: addend, difference, inverse operations,

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.4.NBT.3:** Use place value understanding to round multi-digit whole numbers to any place. **CC.4.NBT.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **CC.4.MD.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	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
1.9 TE p69-76	**I can** • subtract multidigit whole numbers. **Formative Assessment:** Ask student to describe how to use ungrouping to subtract from thousands. Students should explain that ungrouping mean taking one ten and turning it into ten ones. They should also recognize that ungrouping left to right and ungrouping right to left gives you the same answer.	NBT.4 SMP2 SMP3 SMP5 SMP6 SMP7	SAB p23 (E) SAB p24 (E) HW p17 (NE) R p18 (NE)	
	Lesson 1.9 Notes			
1.10 TE p77-82	**I can** • relate subtraction and addition. **Formative Assessment:** Ask students to describe the relationship between addition and subtraction. Students should explain that addition and subtraction are inverse operations. They should be able to give examples of related problems.	NBT.4 SMP1 SMP3 SMP4 SMP6 SMP8	SAB p25(E) SAB p26 (E) HW p19 (NE) R p20 (NE)	
	Lesson 1.10 Notes			
1.11 TE p83-90	I **can** • use methods for ungrouping to subtract any size number. **Formative Assessment:** Ask students to summarize what they know about subtracting and grouping with greater numbers. Students should generalize that they can use the same	OA.3 NBT.4 SMP1 SMP3 SMP6 SMP8	SAB p27(E) SAB p28 (E) HW p21 (NE) R p22 (NE)	

	methods to ungroup regardless of the number of digits			
	Lesson 1.11 Notes			
1.12 TE p91-96	**I can** • add and subtract multidigit numbers. **Formative Assessment:** Ask students to describe how to solve two-step addition and subtraction problems. Students should verbalize the importance of determining what they need to find in the problem and which operation to use.	NBT.4 SMP1 SMP3 SMP4 SMP6	SAB p29 (E) SAB p30 (E) HW p23 (NE) R p24 (NE)	
	Lesson 1.12 Notes			
1.13 TE p97-104	**I can** • solve addition and subtraction word problems with greater numbers. **Formative Assessment:** Ask students to describe how to solve problems involving addition and subtraction. Students should be able to explain how to perform the operations as well as methods of checking answers.	NBT.4 MD.2 SMP1 SMP3 SMP4 SMP6 SMP7	SAB p31 (E) SAB p32 (E) SAB p33 (E) SAB p34 (E) HW p25 (NE) R p26 (NE)	
	Lesson 1.13 Notes			
1.14 TE p105-110	Focus on Mathematical Practices	NBT.3 NBT.4 SMP1 SMP2 SMP3	SAB p35 (E) SAB p36 (E) HW p27 (NE) R p28 (NE)	

		SMP4 SMP5 SMP6 SMP7		
	Lesson 1.14 Notes			
Quiz 3			AG p18 (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 Read, write, and identify the place value of numbers through 1,000,000.
- 1B Identify and describe place value patterns.
- 1C Compare and round multidigit numbers.
- 1D Add and subtract multidigit numbers.
- 1E Solve real world problems.

Day 1: Final Formative Assessment - SAB p37-38

Day 2-4: Reteaching Activities – TE p112-114

Day 5: Assessment - Unit 1 Test AG p23-26

Alpena Montmorency Alcona Educational Service District **04 Pacing Guide**
Unit 2: Multiplication with Whole Numbers **26-28 Days**

Math Background:
- Research - TE p115T-115U
- Background - TE p125W-115NN

Learning Path:
- **Students broaden and deepen experiences with multiplication to include multiplying numbers through thousands by one-digit numbers through thousands by one-digit numbers and finding the product of two two-digit numbers. Students:**
  - model the concepts of arrays, single-digit multiplication, place value, and area.
  - gain a conceptual understanding of multidigit multiplication.
  - apply their understanding of multidigit multiplication to numeric calculations and real world problem solving situations, including multistep problems.

Big Idea 1: Multiplication with Tens and Hundreds
- About 4 days. Suggested date of completion:

Vocabulary: area, area model, array, factor, product, square unit

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.NBT.1: Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division. **CC.4.NBT.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	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
2.1	**I can** • use area models for multiplication of tens and ones. **Formative Assessment:** Ask students to draw a model to represent 4 x 20, and then solve by factoring the tens. Students should be able to write out the steps to show 4 x 20 = (4 x 1) x (2 x 10) = (4 x 2) x (10 x 1) = 8 x 10 = 80.	NBT.5 SMP3 SMP5 SMP6 SMP8	SAB p41 (E) SAB p42 (E) HW p29 (NE) R p30 (NE)	
2.2	**I can** • use place value understanding to multiply tens. **Formative Assessment:** Ask students to explain how to find 40 x 20 by factoring the tens. Students should be able to write out the steps to show 40 x 20 = (4 x 10) x (2 x 10) = (4 x 2) x (10 x 10)= 8 x 100 = 800 and provide a model.	NBT.1 NBT.5 SMP1-8	SAB p43 (E) SAB p44 (E) HW p31 (NE) R p32 (NE)	
2.3	**I can** • use patterns in multiplication with ones, tens, and hundreds. **Formative Assessment:** Ask student to write 7 x 40 as a number time a place value and explain the steps. Then have students explain how they could use the product of 7 x 40 to find 7 x 400. Students should be able to explain that since the place value of 400 is 10 times greater than 40, then there should be another zero in the product.	NBT.1 NBT.5 SMP1 SMP3 SMP6 SMP7 SMP8	SAB p45 (E) SAB p46 (E) HW p33 (NE) R p34 (NE)	

Quiz 1			AG p30 (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: Multiply by One-Digit Numbers
- About 9 days. Suggested date of completion:

Vocabulary: Algebraic Notation Method, Distributive Property, estimate, Expanded Notation Method, Partial products, Place Value Sections Method, rounding, Shortcut Method

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.4.NBT.2: Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.4.NBT.3: Use place value understanding to round multi-digit whole numbers to any place.	
CC.4.NBT.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically.
CC.4.MD.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	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
2.4	**I can** • represent one-digit by two-digit multiplication using area models. **Formative Assessment:** Ask students to write a one-digit by two-digit multiplication word problem involving money. Then have students draw an area model to represent the problem. Ask students to explain how to use the model to find the product. Students should be able to explain that the area model is made up of two smaller rectangles, a tens part and a ones part, and that they need to find the tens product and the ones product, first. Then, they need to add the products together to find the total product.	NBT.2 NBT.5 MD.2 SMP1 SMP2 SMP3 SMP5 SMP6	SAB p47 (E) SAB p48 (E) SAB p49 (E) SAB p50 (E) HW p35 (NE) R p36 (NE)	
2.5	**I can** • use estimation and multiplication with tens to check products. • solve real world problems. **Formative Assessment:** Ask students to explain how they can use rounding to estimate 57 x 3. Students should be able to explain that they can round 57 to 50 and 60 then multiply each by 3.	NBT.3 NBT.5 SMP1 SMP2 SMP3 SMP5 SMP6 SMP8	SAB p51 (E) SAB p52 (E) HW p37 (NE) R p38 (NE)	
2.6	**I can** • relate the area model of multiplication to numerical methods of multiplication. **Formative Assessment:** Ask students to find 8 x 73, first by using the Place Value Sections Method and then by using the Expanded Notation Method. Ask students to explain how	NBT.5 SMP1 SMP2 SMP3 SMP4 SMP5 SMP6	SAB p53 (E) SAB p54 (E) HW p39 (NE) R p40 (NE)	

	the area model related to each numerical step. Students should be able to draw and label both area models and record the multiplications for finding the areas for each section.	SMP7		
2.7	**I can** • relate the Distributive Property to multiplication. **Formative Assessment:** Ask students to explain how to use the Algebraic Notation Method to multiply a one-digit number by a two-digit number and give an example. Also, have students demonstrate the method using an area model. Students should be able to connect each step of the Algebraic Notation Method to the corresponding part of the model.	NBT.5 SMP1 SMP2 SMP3 SMP4 SMP5 SMP6 SMP8	SAB p55 (E) SAB p56 (E) HW p41 (NE) R p42 (NE)	
2.8	**I can** • use area models and numerical methods of multiplication. **Formative Assessment:** Ask students to choose their favorite method to find 7 x 58. Students should draw an area model and explain how it helps them solve the problem. Ask students to explain how the method they chose is different from the other two methods.	NBT.5 SMP2 SMP3 SMP5 SMP6 SMP7 SMP8	SAB p57 (E) SAB p58 (E) HW p43 (NE) R p44 (NE)	
2.9	**I can** • compare and analyze methods of multiplication. **Formative Assessment:** Ask students to explain how they would multiply 4 x 37. Students should be able to explain the two partial products they need to find and how they are represented in the method they chose.	NBT.5 SMP2 SMP3 SMP6 SMP7	SAB p59 (E) SAB p60 (E) HW p45 (NE) R p46 (NE)	

2.10	**I can** • model one-digit by three digit multiplication. **Formative Assessment:** Ask students to write and solve a one-digit by three-digit multiplication problem. Then have students explain the method they used.	NBT.2 NBT.5 MD.2 SMP1 SMP2 SMP3 SMP5 SMP6 SMP7	SAB p61 (E) SAB p62 (E) SAB p63 (E) SAB p64 (E) HW p47 (NE) R p48 (NE)	
2.11	**I can** • solve real world problems. **Formative Assessment:** Ask students to write and solve a word problem for 5 x 207. Student should identify if their word problems contain too much information or hidden questions.	OA.3 NBT.5 SMP1 SMP2 SMP3 SMP5 SMP6	SAB p65 (E) SAB p66 (E) SAB p67 (E) SAB p68 (E) HW p49 (NE) R p50 (NE)	
Quiz 2			AG p31 (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: Multiplication with Two-Digit Numbers
- About 5 days. Suggested date of completion:

Vocabulary: None

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.4.NBT.2:** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. **CC.4.NBT.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models**.**	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
2.12	**I can** • represent two-digit by two-digit multiplication using area models. **Formative Assessment:** Ask students how they would find the product of 26 x 48. Students should be able to explain the multiplication in terms of how many tens and how many one are in the product.	NBT.2 NBT.5 SMP3 SMP5 SMP6	SAB p69 (E) SAB p70 (E) HW p51 (NE) R p52 (NE)	
2.13	**I can** • use different methods of two-digit by two-digit multiplication. **Formative Assessment:** Ask students to explain how they would multiply 36 x 74. Students should be able to explain the four partial products they need to find and how they are represented in the method they chose.	NBT.5 SMP1 SMP2 SMP3 SMP6 SMP7	SAB p71 (E) SAB p72 (E) HW p53 (NE) R p54 (NE)	
2.14	**I can** • compare methods of multiplication. • estimate products of two-digit numbers. **Formative Assessment:** Ask students to describe estimation strategies they use to estimate products. Students should give examples of situation when an estimate is appropriate and when an overestimate is necessary.	NBT.5 SMP1 SMP3 SMP6	SAB p73 (E) SAB p74 (E) HW p55 (NE) R p56 (NE)	
2.15	**I can** • practice two-digit by two-digit multiplication **Formative Assessment:** Ask students to	OA.3 NBT.5 SMP1 SMP2	SAB p75 (E) SAB p76 (E) HW p57 (NE) R p58 (NE)	

	describe the different multiplication methods they have studied. Have them explain which method they prefer and why.	SMP3 SMP6 SMP8		
Quiz 3			AG p32 (E)	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 4: Multiplication with Thousands
- About 5 days. Suggested date of completion:

Vocabulary: None

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.NBT.2: Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. **CC.4.NBT.3:** Use place value understanding to round multi-digit whole numbers to any place. **CC.4.NBT.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **CC.4.MD.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	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
2.16	**I can** • multiply with thousands. **Formative Assessment:** Ask students to write a one-digit by four-digit multiplication and solve it using any of the three methods. Students should draw an area model to represent the problem.	NBT.2 NBT.5 SMP1 SMP2 SMP3 SMP5 SMP6 SMP7	SAB p77 (E) SAB p78 (E) HW p59 (NE) R p60 (NE)	
2.17	**I can** • multiply one-digit numbers by four-digit numbers. **Formative Assessment:** Ask students to solve 6 x 5,283 using the Shortcut Method. Then have students round, estimate the product, and fix the estimate so that it is close to the actual product. Students should be able to use the distributive property to find the estimate.	NBT.3 NBT.5 SMP1 SMP2 SMP3 SMP6 SMP7 SMP8	SAB p79 (E) SAB p80 (E) SAB p81 (E) SAB p82 (E) HW p61 (NE) R p62 (NE)	
2.18	**I can** • perform multidigit multiplication with up to one-digit by four-digits. **Formative Assessment:** Students should be able to use any method they choose to solve word problems and computation problems involving the multiplication and 1-digit numbers by 2-digit numbers, 3-digit numbers, and 4-digit whole numbers and 2-digit numbers by 2-digit numbers.	OA.3 NBT.5 MD.2 SMP1 SMP3 SMP6	SAB p83 (E) SAB p84 (E) HW p63 (NE) R p64 (NE)	

2.19	Mathematical Practices	OA.3 NBT.2 NBT.5 SMP1-8	SAB p85 (E) SAB p86 (E) HW p65 (NE) R p66 (NE)	
Quiz 4			AG p33 (E)	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Unit 2: Enrichment/Intervention Loop
- About 3-5 days. Suggested date of completion:

Unit Test Objectives
- 2A Solve multiplication problems using mental math.
- 2B Multiply with a one-digit whole number.
- 2C Estimate products.
- 2D Multiply with a two-digit number.
- 2E Solve real world multistep word problems.

Day 1: Final Formative Assessment - SAB p87-90

Day 2-4: Reteaching Activities – TE p262-265

Day 5: Assessment - Unit 2 Test p38-41

Unit 3: Division with Whole Numbers
16-18 Days

Math Background:
- Research - TE p267N-267O
- Background - TE p267P-267HH

Learning Path:
- **Students explore the concept:**
  - division of number through thousands, with and without remainders.
  - relating the multiplication models and methods to division as they learn various ways to divide.

Big Idea 1: Dividing Whole Numbers
- About 7 days. Suggested date of completion:

Vocabulary: dividend, divisor, quotient

Common Core State Standards of Mathematics	Common Core Standards of Mathematical Practices [SMPs]
CC.4.NBT.6: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	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** • divide with remainders. • use multiplication patterns to divide with zeros. **Formative Assessment:** Ask students what it means to have a remainder in a quotient. Students should be able to explain that the remainder I what is "left over" after the dividend is broken into equal groups. They can support their explanations with specific examples.	NBT.6 SMP2 SMP3 SMP4 SMP6 SMP7 SMP8	SAB p93 (E) SAB p94 (E) SAB p95 (E) SAB p96 (E) HW p67 (NE) R p68 (NE)	Read: 267Y-267Z This lesson may take 2 Days! 269 IMPORTANT note Important to see scaffolding in unit and how they are brought together. 270 read note
3.2	**I can** • use multiplication methods to divide. **Formative Assessment:** Ask students to explain how to relate multiplication to division using the Place Value Sections Method and the Expanded Notation Method. Students should be able to verbalize the steps involved for each method, including division problems which result in a remainder.	NBT.6 SMP1 SMP3 SMP6	SAB p97 (E) SAB p98 (E) SAB p99 (E) SAB p100 (E) HW p69 (NE) R p70 (NE)	Read: 267AA-267BB 276 READ! Introducing 2 methods Let the students come up with the way it makes sense to them. Always start new topics by eliciting as much info from the students as possible. Always ask for students own ideas first – even when directions say for the teacher to do the talking!!!!!
3.3	**I can** • divide with 2-digit and 4-digit quotients. **Formative Assessment:** Ask students how to use the Place Value Sections Method and the Expanded Notation Method to divide. Students should be able to explain how to	NBT.6 SMP2 SMP3 SMP4 SMP5 SMP6 SMP7	SAB p101 (E) SAB p102 (E) SAB p103 (E) SAB p104 (E) HW p71 (NE) R p72 (NE)	Read: 267CC-267DD Distributive property! Area in this unit is all about division!

	use each method with and without remainders. Ask students to explain which method they prefer and why.	SMP8		
3.4	**I can** • use the Digit-by-Digit Method to divide. **Formative Assessment:** Ask students to describe how to solve a division problem using the Digit-by-Digit Method. Students should be able to relate the method to the Expanded Notation and Place Value Sections Methods. They should also show an awareness of the hidden zeros that represent place value.	NBT.6 SMP3 SMP4 SMP5 SMP6	SAB p105 (E) SAB p106 (E) SAB p107 (E) SAB p108 (E) HW p73 (NE) R p74 (NE)	Read: 267EE Use secret code cards. Comparing the methods is huge!
3.5	**I can** • divide with 4-digit dividends. **Formative Assessment:** Ask students to describe the three methods they used in this lesson to solve division problems. Students should discuss the advantages and disadvantages of each method.	NBT.6 SMP1 SMP2 SMP3 SMP6 SMP8	SAB p109 (E) SAB p110 (E) HW p75 (NE) R p76 (NE)	Read: 267EE Have students share their ways to solve. All good notes to read in this lesson.
3.6	**I can** • solve division problems by using any method. **Formative Assessment:** Write the following problem on the board: 6,584 ÷ 8. Ask students to solve the problem by using one of the method discussed in this lesson and explain the steps involved. 823	NBT.6 SMP1 SMP3 SMP6 SMP8	SAB p111 (E) SAB p112 (E) HW p77 (NE) R p78 (NE)	Read: 267EE Use base ten blocks if students need a connection to the picture.

Quiz 1			AG p45 (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: Division Issues and Word Problems
- About 6 days. Suggested date of completion:

Vocabulary: situation equation, solution equation

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.4.NBT.3:** Use place value understanding to round multi-digit whole numbers to any place. **CC.4.NBT.6:** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	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
3.7	**I can** • determine the correct size multiplier for a division quotient. **Formative Assessment:** Ask students to share the strategies they use to adjust the quotient when estimated digit is too low.	NBT.6 SMP1 SMP2 SMP3 SMP6	SAB p113 (E) SAB p114 (E) HW p79 (NE) R p80 (NE)	Read: 267EE Money helps some students to connect to the meaning of the remainders.
3.8	**I can** • use rounding and estimation to check quotients. **Formative Assessment:** Ask students to describe one rounding method they used to estimate. Students should be able to explain all the steps for one of the methods in this lesson.	OA.3 NBT.3 NBT.6 SMP1 SMP2 SMP3 SMP6	SAB p115 (E) SAB p116 (E) HW p81 (NE) R p82 (NE)	Read: 267EE Allow students to ask questions and figure out solutions before you give the answers.
3.9	**I can** • understand different ways to interpret remainders in division. **Formative Assessment:** Ask students how they know what to do about the remainder of a division. Students should be able to explain that the question that is asked tells you how to interpret the remainder.	OA.3 NBT.6 SMP1 SMP3 SMP6	SAB p117 (E) SAB p118 (E) HW p83 (NE) R p84 (NE)	Read: 267FF-267GG Explaining others work is beneficial.
3.10	**I can** • solve word problems with mixed operations. **Formative Assessment:** What is important to remember when solving multistep problems? Students should explain that they need to check to see if the steps of a multistep problem need to be done in a specific order if the steps	OA.3 NBT.6 SMP1 SMP3 SMP4 SMP6 SMP7	SAB p119 (E) SAB p120 (E) HW p85 (NE) R p86 (NE)	Read: 267FF-267GG Important to monitor, clarify, extend and direct the math conversation Focus on helping students understand the situation of the equation

	can be done in any order.			
3.11	Mathematical Practices	NBT.6 SMP1-8	SAB p121 (E) SAB p122 (E) HW p87 (NE) R p88 (NE)	Read: 267HH
Quiz 2			AG p46 (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 Divide with up to four-digit dividends and one-digit divisors.
● 3B Use rounding and estimating to check quotients.
● 3C Understand remainders and use division to interpret remainders in the context of a problem.
● 3D Solve one-step and multistep problems.
● 3E Solve real world problems.
Day 1: Final Formative Assessment - SAB p123-124
Day 2-4: Reteaching Activities – TE p352-354
Day 5: Assessment - Unit 2 Test p47-50

Unit 4: Equations and Word Problems
15-17 Days

Math Background:
- Research - TE p355O-355Q
- Background - TE p355R-355VV

Learning Path:
- **Students apply problem solving strategies and learn problem solving skills. Their work involves:**
  - writing real world contexts.
  - writing situation and solution equations for one-step, two-step, and multistep problems representing addition, subtraction, multiplication, and division of whole numbers.

Big Idea 1: Reasoning and Solving Problems
- About 4 days. Suggested date of completion:

Vocabulary: break-apart drawing, difference, equation, expression, evaluate, factor pair, inverse operations, simplify, situation equation, solution equation, sum, term

Common Core State Standards for Math [CCSS-M]	**Common Core Standards of Mathematical Practices [SMPs]**
CC.4.NBT.4: Fluently add and subtract multi-digit whole numbers using the standard algorithm. **CC.4.NBT.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **CC.4.NBT.6:** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **CC.4.MD.4:** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.	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** • demonstrate an understanding of properties and algebraic notation. **Formative Assessment:** Ask students to explain how they would evaluate an expression with a variable. Students should verbalize that they would substitute a number for the variable, and then use the Order of Operations to perform the operations.	NBT.4 NBT.5 NBT.6 SMP2 SMP3 SMP6 SMP7 SMP8	SAB p127 (E) SAB p128 (E) HW p89 (NE) R p90 (NE)	Read 355EE Learn about order of operations as a convention of how to perform operations First do what's in parentheses then mult and div as they appear from left to right This will help them write and simplify expressions and equations **Read 357-358!!** No formal method is expected at this time
4.2	**I can** • read, write, and solve addition and subtraction equations. **Formative Assessment:** Ask students to explain the difference between a situation equation and a solution equation. Require students to support their explanations with examples on the board or in their Math Journals.	NBT.4 SMP1-8	SAB p129 (E) SAB p130 (E) SAB p131 (E) SAB p132 (E) HW p91 (NE) R p92 (NE)	Read 355FF-355HH 2 days! Especially if they don't know situation/solution equations Understanding the = and ≠ as an indication of a relationship of the equality of the expression on the right and left sides Add and sub as an inverse operation – using break apart drawings (math mountains) Writing 2 equations involves writing a situation and solution equation **355HH good read!** Use a letter to represent and unknown, like a box was used in the past grades
4.3	**I can** • write equations to solve multiplication and division problems.	NBT.4 NBT.5 NBT.6	SAB p133 (E) SAB p134 (E) HW p93 (NE)	Read 355II-355LL Use the rectangle model to help see the relationship

	Formative Assessment: Ask students to explain how to solve real world multiplication and division problems. Students should explain that they can write situation and solution equation and draw a model such as a rectangle model to represent the problem.	MD.2 SMP1 SMP2 SMP3 SMP4 SMP6 SMP7	R p94 (NE)	between factor, product quotient dividend and divisor – this helps see how division and multiplication are related – you can see all the equations from this drawing **355KK good read!** Might need to review rectangle model that was taught in previous grades
Quiz 1			AG p58 (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: Comparison Word Problems
- About 4 days. Suggested date of completion:

Vocabulary: compare, comparison bar, comparison situation, fewer, pictograph

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.OA.1: Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. **CC.4.OA.2:** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	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
4.4	**I can** • write and solve multiplication and division equations for comparison problems. **Formative Assessment:** Ask students to describe how to solve a multiplication comparison problem. Students should verbalize that they determine the known and unknown information. They can then draw comparison bars if needed, and write and solve an equation.	OA.1 OA.2 SMP1 SMP2 SMP3 SMP4 SMP6	SAB p135 (E) SAB p136 (E) HW p95 (NE) R p96 (NE)	Read 355MM-355QQ Comparison bar drawings help students show which quantity is larger MX uses the term comparison and uses the bars as representation because it is easy to understand. The CCSS –OA uses a tape diagram READ teaching note 380
4.5	**I can** • write, solve, and compare addition comparison problems. • write, solve, and compare multiplication comparison problems. **Formative Assessment:** Ask students to explain how addition comparison problems differ from multiplication comparison problems. Students should explain that addition comparison problems as questions such as "How much more is x than y?" while multiplication comparison problems ask questions such as "How many times x than y?" Invite volunteers to the board to write an example of each type of comparison problem.	OA.1 OA.2 SMP1 SMP2 SMP3 SMP4 SMP6 SMP7	SAB p137 (E) SAB p138 (E) HW p97 (NE) R p98 (NE)	Read 355MM-355QQ 2 days – unless a good understanding of language and operations in add/mult comp. problems Comparing additive and mult. Comparison problems – seeing which quantity is larger then decide on solution Comparison mult the question is – how many times a is b Addition question is – how much more is a than b Use fewer when counting quantity of objects – fewer books Use less when measuring – less water
4.6	**I can** • answer comparison questions about a pictograph and a bar graph.	OA.1 OA.2 SMP1	SAB p141 (E) SAB p142 (E) HW p99 (NE) R p100 (NE)	Read 355MM-355QQ Bar and pictographs are designed to help students

	Formative Assessment: Ask students to describe how pictographs and bar graphs are alike and how they are different. Some possible responses are:
	
	        -Both graphs show how many of something are in different groups or categories.
	
	        -Both graphs allow you to compare data
	
	        -Pictographs use pictures to show a given number of items. Bar graphs use bars and a scale.
		SMP2
		SMP3
		SMP6
				visualize comparison relationships
				
				Language in problems is important to understand

Quiz 2			AG p59 (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: Problems with More Than One Step
- About 4 days. Suggested date of completion:

Vocabulary: none

Common Core State Standards for Math [CCSS-M]	**Common Core Standards of Mathematical Practices [SMPs]**
CC.4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.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** • use equations to solve two-step word problems involving all four operations. **Formative Assessment:** Ask students to summarize what two-step problems are and how to solve them. Students should be comfortable with identifying the helping question and the operation needed to answer it, as well as the final question.	OA.3 SMP1 SMP3 SMP6	SAB p143 (E) SAB p144 (E) HW p101 (NE) R p102 (NE)	Read 355RR-355TT Lessons 7-9 involve more than one step – order of operations is key to understand this This lesson focuses on identifying the question that needs to be answered before the final solution can be found Review lesson 1 if needed to understand order of operations and the purpose of parentheses
4.8	**I can** • use equations to solve multistep word problems involving all four operations. **Formative Assessment:** Ask students to summarize how to solve a multistep problem. Students' summaries should demonstrate an understanding of identifying the operation needed for the multistep problems, writing equations, and solving by using the Order of Operations.	OA.3 SMP1 SMP3 SMP4 SMP6	SAB p145 (E) SAB p146 (E) SAB p147 (E) SAB p148 (E) HW p103 (NE) R p104 (NE)	Read: 355RR – 355TT More than 2 steps must be completed to generate solutions A good understanding of order of operations including parentheses is essential
4.9	**I can** • use addition, subtraction, multiplication, and division to solve problems that involve more than one step. **Formative Assessment:** Conclude the exploration of multistep word problems by reiterating what I true for solving all word problems: The most important thing is to understand the situation. Once the situation has been understood, an equation can be used to represent and solve the problem.	OA.3 SMP1 SMP3 SMP4 SMP6	SAB p149 (E) SAB p150 (E) HW p105 (NE) R p106 (NE)	Read: 355RR-355TT Order of operations is huge! Review again with students Try to not give the answer in your questions.

Quiz 3			AG p60 (E)	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 4: Analyzing Patterns

- About 4 days. Suggested date of completion:

Vocabulary: composite number, multiple, pattern, prime number, sequence, term

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.NBT.4: Fluently add and subtract multi-digit whole numbers using the standard algorithm. **CC.4.NBT.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **CC.4.NBT.6:** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **CC.4.OA.1:** Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. **CC.4.OA.2:** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.1 **CC.4.OA.1:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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. Gain familiarity with factors and multiples. **CC.4.OA.4:** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite. Generate and analyze patterns. **CC.4.OA.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.	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
4.10	**I can** • practice with factors, multiples, and prime and composite numbers. **Formative Assessment:** Ask students to explain how factor pairs can be used to decide if a number is prime or composite. Students should also be able to tell how they know a whole number is a multiple of a given number or a factor of a given number. Student summaries should include an understanding of factor pair, factors, prime and composite numbers, multiples, and patterns.	OA.4 OA.5 SMP3 SMP5 SMP6 SMP7 SMP8	SAB p151 (E) SAB p152 (E) SAB p153 (E) SAB p154 (E) HW p107 (NE) R p108 (NE)	Read 355UU-355W Understand factor and factor pairs is important Relationship between factors and multiples – use count bys to understand When you are explaining a problem, make sure to tell all of the parts and the thinking behind why you are doing that. Finding factors and factor pairs students are decomposing numbers Finding products and multiples students are composing numbers Help students understand- a factor of a whole number is always less than or equal to that number AND – a multiple of a whole number is always greater than or equal to that number
4.11	**I can** • generate number or shape patterns. **Formative Assessment:** Ask students to explain how to find the next terms in a numerical pattern and a geometric pattern. Students should verbalize that you need to understand the rule of pattern to predict any future terms in the pattern.	OA.5 SMP3 SMP6 SMP7 SMP8	SAB p155 (E) SAB p156 (E) HW p109 (NE) R p110 (NE)	Read 355UU-355VV Extending numerical and geometric patterns
4.12	Mathematical Practices	NBT.4 NBT.5 NBT.6 MD.2	SAB p157 (E) SAB p158 (E) HW p111 (NE) R p112 (NE)	Read 355VV

		OA.1 OA.2 OA.3 OA,4 OA.5 SMP1-8		
Quiz 4			AG p61 (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 Evaluate expressions and solve equations with parentheses.
- 4B Write an equation to solve a problem.
- 4C Solve comparison problems; interpret a pictograph and a bar graph.
- 4D Solve multistep word problems.
- 4E Find factor pairs and determine whether a number is prime or composite; recognize multiples.
- 4F Identify and extend numerical, repeating, and growing patterns.
- 4G Solve real world problems.

Day 1: Final Formative Assessment - SAB p159-162

Day 2-4: Reteaching Activities – TE p446-450

Day 5: Assessment - Unit 2 Test p62-65

Unit 5: Measurement
13-15 Days

Math Background:
- Research - TE p451N-451O
- Background - TE p451P-451FF

Learning Path:
- **Students explore:**
    - customary and metric measurement.
    - time concepts.
    - area and perimeter.

- **Students build on their understanding of measuring:**
    - distance.
    - weight.
    - capacity.
    - time.

Big Idea 1: Converting Measurements
- About 5 days. Suggested date of completion:

Vocabulary: centimeter, cup. decimeter, fluid ounce, foot, gallon, gram, inch, kiloliter, kilometer, line plot, ounce, pint, pound, liter, liquid volume, mass, meter, metric system, mile, milligram, milliliter, millimeter, prefixes, quart, ton, yard

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.MD.1: Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a twocolumn table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.4.MD.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	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.4.MD.4: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.	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** - explore the system of metric units of length.	MD.1 MD.2	SAB p165 (E) SAB p166 (E) SAB p167 (E)	Read 451YY and 451Z

	Formative Assessment: Ask students the relationship between kilometers, meters, decimeters, centimeters, and millimeters. Students should be able to explain that all the units are related by a multiple of ten. They should also be able to recognize that when converting units, the larger unit needs to be multiplied by a multiple of 10 to find the smaller unit.	SMP1 SMP3 SMP4 SMP5 SMP6 SMP7 SMP8	SAB p168 (E) HW p113 (NE) R p114 (NE)	Kids start exploring metric units – Property of measurements iteration- measure tolls that units repeat, partitioning- measuring tool have large units divided into smaller units, compensatory principle- more smaller units than larger units are needed to measure any distance, transitivity- relationship among three elements
5.2	**I can** • recognize and measure metric units of liquid volume and mass. **Formative Assessment:** Ask students to explain the relationship between kiloliters, liters, and milliliters. Then have them explain the relationship between kilograms, grams, centigrams, and milligrams. Students should be able to explain which number to multiply by to convert from larger units to smaller units.	MD.1 MD.2 SMP1 SMP2 SMP3 SMP6 SMP7	SAB p169 (E) SAB p170 (E) SAB p171 (E) SAB p172 (E) HW p115 (NE) R p116 (NE)	Read: 451Y and 451BB Capacity is a measure of liquid volume Liquid volume and capacity are not the same – liquid volume measures the amount of space a liquid occupies Mass is amount of matter in an object Weight is effect of gravity on matter
5.3	**I can** • solve problems involving different units of time. **Formative Assessment:** Ask students to summarize how to convert units of time and how to solve elapsed time problems. Students should know that they multiply to convert a larger unit to a smaller unit, and that elapsed time problems involve addition and subtraction of units.	MD.1 MD.2 MD.4 SMP1 SMP3 SMP6	SAB p173 (E) SAB p174 (E) SAB p175 (E) SAB p176 (E) HW p117 (NE) R p118 (NE)	Read: 451Y, 451DD, and 451FF. Use time unit equivalencies to convert amount time units Relate fractions of an hour to minutes to understand ¼ = 15 minutes Review from previous grades elapsed time Reminder that ungrouping tens or hundreds is same process as ungrouping hours
5.4	**I can** • apply knowledge of customary units of length. **Formative Assessment:** Ask students to give	MD.1 MD.2 SMP1 SMP3	SAB p177 (E) SAB p178 (E) HW p119 (NE) R p120 (NE)	Read: 451Y and 451Z Use a ruler and measure more precise to the nearest 1/8 inch

	examples of customary units of length, such as inch, foot, yard, and mile. Students should be able to describe how to convert from larger units of length to smaller units of length.	SMP4 SMP5 SMP6 SMP8		
5.5	**I can** • understand and use customary units of weight and liquid volume. **Formative Assessment:** Ask students to discuss the units of weight and liquid volume that they have explored in this lesson. Pose the following questions: • If you weigh a pile of books, will the number of ounces or the number of pounds be greater? • If you measure the water in a pitcher, will the number of cups or the number of quarts be grater? • When converting from a larger unit to a small unit, which operation do you use? Student responses should demonstrate an understanding of the relative size of units of measure.	MD.1 MD.2 SMP1 SMP3 SMP5 SMP6 SMP7	SAB p179 (E) SAB p180 (E) SAB p181 (E) SAB p182 (E) HW p121 (NE) R p122 (NE)	Read: 451U, 451BB, 451FF Volume of liquids is measure in fluid ounces Units of weight – ton is new unit for kids
Quiz 1			AG p73 (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: Perimeter
- About 4 days. Suggested date of completion:

Vocabulary: area, formula, length, perimeter, square unit, width

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.MD.1: Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express easurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a twocolumn table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ... **CC.4.MD.2**: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **CC.4.MD.3:** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.	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
5.6	**I can** • explore the general methods for finding perimeter and area of rectangles. **Formative Assessment:** Ask students to discuss how to find the perimeter and area of a rectangle. Students should be able to give the formulas for perimeter and area. Students can give numeric examples to demonstrate their understanding.	MD.3 SMP1 SMP2 SMP3 SMP5 SMP6 SMP8	SAB p183 (E) SAB p184 (E) SAB p185 (E) SAB p186 (E) HW p123 (NE) R p124 (NE)	Read: 451EE Emphasize a conceptual understanding of perimeter Encourage kids to discuss how multiplication can be used to write this in a shorter way Finding the area first concentrate on conceptualizing what area is, then by calculating the number of squares Hands on material help building understanding
5.7	**I can** • solve real world measurement word problems involving all four operations. **Formative Assessment:** Ask students to discuss how they approach solving real world problems involving measurement, perimeter, and area. Students should be able to generalize that in all real world problems, they need to analyze what the problem is asking you to find. They they can decide if their answer will require one step or multiple steps. Finally, they can review their answer to see if a conversation of units is needed.	MD.1 MD.2 MD.3 SMP1 SMP2 SMP3 SMP4 SMP5 SMP6	SAB p187 (E) SAB p188 (E) HW p125 (NE) R p126 (NE)	Read: 451Y and 451FF
5.8	Mathematical Practices	MD.1 MD.2 MD.3 SMP1-8	SAB p189 (E) SAB p190 (E) HW p127 (NE) R p128 (NE)	Read: 451FF

Quiz 2			AG p74 (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 Convert metric units of measure. ● 5B Solve problems involving time. ● 5C Convert customary units of measure. ● 5D Solve perimeter and area problems. ● 5E Solve real world problems.
Day 1: Final Formative Assessment - SAB p191-192
Day 2-4: Reteaching Activities – TE p510-512
Day 5: Assessment - Unit 5 Test p75-78

Unit 6: Fraction Concepts and Operations
16-18 Days

Math Background:
- Research - TE p513O-513P
- Background - TE p513Q-513HH

Learning Path:
- **Students build upon their understanding of fractions to gain a conceptual and practical understanding of:**
  - the parts of fractions.
  - relationships among fractions.
  - mixed numbers and improper fractions.
  - operations with fractions and mixed numbers.

Big Idea 1: Fractions with Like Denominators

- About 4 days. Suggested date of completion:

Vocabulary: denominator, fraction, numerator, unit fraction

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.NF.2: Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.4.NF.3: Understand a fraction a/b with a > 1 as a sum of fractions 1/b.	CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.4.NF.3a: Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.4.NF.3b: Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.	CC.K-12.MP.4: Model with math.
CC.4.NF.3d: Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	CC.K-12.MP.5: Use appropriate tools strategically.
CC.4.NF.4a: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).	CC.K-12.MP.6: Attend to precision.
CC.4.MD.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	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 fractions as sums of unit fractions. **Formative Assessment:** Ask students to explain what a unit fraction is and how unit fractions are used to build other fractions.	NF.3 NF.3b NF.4a SMP2 SMP3 SMP4 SMP5 SMP6 SMP7	SAB p195 (E) SAB p196 (E) SAB p197 (E) SAB p198 (E) HW p129 (NE) R p130 (NE)	Read 513Z Really try hard not to tell kids at the start of a new topic get kids to say ANYTHING they know about this new topic – ALWAYS have your kids share their ideas FIRST!!! – Their ideas do Not have to look like the book ideas – but it will tell you where you need to begin the precise math vocab – but use a variety of language – like saying ¾ as three fourths, or from 4 equal parts take 3 Fold fractions to see unit fractions 1/d as one of d equal parts of the whole Fold strips to visualize how to think of fractions as a sum of unit fractions Understand multiplication as repeated addition ALWAYS keep your whole the same length! Don't tear off a strip if you don't fold It accurately Differentiate – more rigor by having kids find more patterns with different fractions
6.2	**I can** • find pairs of fractions that add to one. **Formative Assessment:** Ask students to explain how to find pairs of fractions that have a sum of 5/5. Then, ask them why, when we compare unit fractions, the fraction with the smaller denominator is greater.	NF.2 NF.3 NF.3a NF.b SMP2 SMP3 SMP5 SMP6 SMP8	SAB p199 (E) SAB p200 (E) SAB p201 (E) SAB p202 (E) HW p131 (NE) R p132 (NE)	Read 513Z Make sure you have kids summarize what you did yesterday before you move on – short 1-2 min only This helps make connections Write wholes as sums of unit fractions Find pairs of numbers that add to one whole (think of putting together different combination of one-fifth) Fraction bars model to help compare and order fractions – this helps to conceptualize why a unit

				fraction gets smaller as the denominator gets larger (foundational understanding that students will continue to build upon) Kids need to understand the magnitude of unit fractions – then they can compare and order unit fractions Watch for kids who look at shaded vs unshaded parts instead of relationship to a whole Fraction circles help see the size of the denominator getting smaller
6.3	**I can** add and subtract fractions with like denominators. **Formative Assessment:** Ask students to explain why we do not add or subtract denominators when we add or subtract fractions.	NF.3 NF.3a NF.3d MD.2 SMP2 SMP3 SMP4 SMP5 SMP6	SAB p203 (E) SAB p204 (E) SAB p205 (E) SAB p206 (E) HW p133 (NE) R p134 (NE)	Read 513BB Adding fractions is simply the understanding of addition as putting together Subtracting fractions – use what you know from whole numbers Fraction bars along with unit fractions as methods of modeling and understanding addition and subtraction $\frac{2}{7} \quad + \quad \frac{4}{7} \quad = \quad \left(\frac{2+4}{7}\right) \quad = \quad \frac{6}{7}$ NOTE! Add and sub of the numerator is written above the denominator to emphasizethat only the numerators are added or subtracted – drawing a circle around it is a transition for helping kids understand (these steps must be shown, but kids don't have to do them when they are ready to give them up – remember – no short cuts in teaching!)
Quiz 1			AG p86(E)	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the RTI Resource Books.	

Big Idea 2: Mixed Numbers with Like Denominators
- About 4 days. Suggested date of completion:

Vocabulary: mixed number

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.NF.2: Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.4.NF.3: Understand a fraction a/b with a > 1 as a sum of fractions 1/b.	CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.4.NF.3a: Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.4.NF.3b: Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.	CC.K-12.MP.4: Model with math.
CC.4.NF.3c: Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	CC.K-12.MP.5: Use appropriate tools strategically.
CC.4.NF.3d: Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	CC.K-12.MP.6: Attend to precision.
CC.4.NF.4a: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).	CC.K-12.MP.7: Look for and make use of structure.
CC.4.MD.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	CC.K-12.MP.8: Look for and express regularity in repeated reasoning.
CC.4.MD.4: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.	

Lesson	Learning Target	CCSM and SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
6.4	**I can** • understand mixed numbers and fractions greater than 1. **Formative Assessment:** Ask students to describe a strategy for changing a mixed number to a fraction and a strategy for changing a fraction to a mixed number.	NF.2 NF.3 NF.3a NF.3b NF.3d SMP2 SMP3 SMP4 SMP5 SMP6 SMP7	SAB p207 (E) SAB p208 (E) HW p135 (NE) R p136 (NE)	Read 513Z Fraction are a division expression Fraction bars help visualize relationship between mixed numbers and fractions greater than 1 Converting mixed numbers to a fraction should not be viewed as a separate technique to be learned rote, but simply as a case of fraction addition. Converting a fraction greater than one to a mixed number is - decomposing into a sum of a whole number and a number less than one (use what learned in grade 3 of whole numbers as fractions)
6.5	**I can** • understand addition and subtraction with fractions greater than 1 and mixed numbers. **Formative Assessment:** Ask students how to subtract mixed numbers when the fraction part of the top number is less than the fraction part of the bottom number.	NF.3 NF.3a NF.3b NF.3c SMP1 SMP3 SMP4 SMP6 SMP7	SAB p209 (E) SAB p210 (E) HW p137 (NE) R p138 (NE)	Read 313BB Use understanding of fractions greater than 1 and what they know about adding and subtracting – along with fraction bars to internalize the model When subtracting, cover up the larger fraction with the smaller fraction bar model.
6.6	**I can** • solve problems involving addition and subtraction of fractions and mixed numbers. **Formative Assessment:** Ask students to explain the steps they followed to solve Exercises 26 and 27 on Student Book Page 212.	NF.3 NF.3a NF.3b NF.3c NF.3d MD.2 MD.4 SMP1	SAB p211 (E) SAB p212 (E) SAB p213 (E) SAB p214 (E) HW p139 (NE) R p40 (NE)	Read 513BB and 513GG Have kids make connection that when fraction is greater than 1, they need to convert to mixed number – use fraction strips to conceptualize! Apply what kids know to solve line plots, find

		SMP3 SMP4 SMP6		patterns, where data clusters, gaps, & range Have kids explain other students work
Quiz 2			AG p87 (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: Multiply Fractions and Whole Numbers
• About 5 days. Suggested date of completion:

Vocabulary: none

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.NF.2: Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.4.NF.3: Understand a fraction a/b with a > 1 as a sum of fractions 1/b.	CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.4.NF.3a: Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.4.NF.3b: Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.	CC.K-12.MP.4: Model with math.
CC.4.NF.3c: Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	CC.K-12.MP.5: Use appropriate tools strategically.
CC.4.NF.3d: Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	CC.K-12.MP.6: Attend to precision.
CC.4.NF.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	CC.K-12.MP.7: Look for and make use of structure.
CC.4.NF.4a: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).	CC.K-12.MP.8: Look for and express regularity in repeated reasoning.
CC.4.NF.4b: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)	
CC.4.NF.4c: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?	

CC.4.MD.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	

Lesson	Learning Target	CCSM and SMPs	Additional Resources Essential (E) Non-essential (NE)	Hints
6.7	I can understand multiplication of fractions by whole numbers. **Formative Assessment:** Ask students to describe a rule for multiplying a fraction by a whole number.	NF.4 NF.4a NF.4b NF.4c SMP1 SMP2 SMP3 SMP4 SMP6 SMP8	SAB p215 (E) SAB p216 (E) SAB p217 (E) SAB p218 (E) HW p141 (NE) R p142 (NE)	Read 513EE and 513GG **Read 569 teaching note** Students apply their understanding of adding 1/8 to itself 3 times to help them multiply 3 by 1/8 – (great opportunity to allow kids to make connection while you offer lots of different language but stick to the math of the problem) Grade 3 learned 3x7=7+7+7 now apply to fraction 1/3+1/3+1/3+1/3 as 4x1/3 next see 4/3=4x1/3 (whole number times numerator) Stick to writing numbers as fractions to see the pattern, later have they can rewrite as mixed number if they want
6.8	I can solve problems that require multiplying a fraction by a whole number. **Formative Assessment:** Ask students to explain why the denominator does not change when we multiply a fraction by a whole number.	NF.4 NF.4a NF.4b NF.4c MD.2 SMP3 SMP4 SMP5 SMP6	SAB p219 (E) SAB p220 (E) HW p143 (NE) R p144 (NE)	Read 513EE and 513GG
6.9	I can practice operations with fractions. **Formative Assessment:** Ask students to	NF.3b NF.3c NF.3d	SAB p221 (E) SAB p222 (E) HW p145 (NE)	Read 513BB, 513EE, and 513GG

	summarize in their own words how to add two mixed numbers and how to multiply a fraction by a whole number.	NF.4 NF.4a NF.4b NF.4c SMP3 SMP5 SMP6	R p146 (NE)	
6.10	Mathematical Practices	NF.2 NF.3 NF.3a NF.3b NF.3c NF.3d NF.4 NF.4a NF.4b NF.4c SMP1-8	SAB p223 (E) SAB p224 (E) HW p147 (NE) R p148 (NE)	Read 513GG
Quiz 3			AG p88 (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 Express a fraction as a sum of other fractions (including as a sum of unit fractions) and as a product of a whole number and a unit fraction.
    ● 6B Add and subtract fractions and mixed numbers with like denominators.
    ● 6C Multiply unit and non-unit fractions by whole numbers.
    ● 6D Solve real world problems, including problems involving line plots.

Day 1: Final Formative Assessment - SAB p225-226
Day 2-4: Reteaching Activities – TE p594-596
Day 5: Assessment - Unit 6 Test AG p89-92

Alpena Montmorency Alcona Educational Service District
04 Pacing Guide
Unit 7: Fractions and Decimals **19-21 Days**

Math Background:
- Research - TE p597Q-597R
- Background - TE p597S-597JJ

Learning Path:
- **Students use their conceptual knowledge of fractions to:**
  - develop procedures to compare fractions.
  - find equivalent fractions using common denominators.

- **Students develop an understanding of decimal numbers and are introduced to a variety of models for representing fractions and decimals as parts of a set.**

Big Idea 1: Comparing Fractions
- About 4 days. Suggested date of completion:

Vocabulary: none

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.NF.2: Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	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
7.1	**I can** • compare non-unit fractions. **Formative Assessment:** Ask students to explain how to compare two fractions with the same numerator and different denominators or with the same denominator and different numerators.	NF.2 SMP1 SMP2 SMP3 SMP5 SMP6 SMP8	SAB p229 (E) SAB p230 (E) HW p149 (NE) R p150 (NE)	Read 597DD Encourage kids to use greater than and less than Comparing – revisit unit fractions – using fraction bars Kids first need to have conceptual understanding of comparing fractions, then they learn how to compare by finding equivalent fractions with a common denominator
7.2	**I can** • use the number-line model for fractions. **Formative Assessment:** Ask students to describe how to draw a number line with fractions and mixed numbers and how to use a number line to compare fractions and mixed numbers. Students should also be able to describe how a number line with benchmarks can be used to compare fractions and whole numbers.	NF.2 SMP1 SMP2 SMP3 SMP4 SMP5 SMP6 SMP7	SAB p231 (E) SAB p232 (E) SAB p233 (E) SAB p234 (E) HW p151 (NE) R p152 (NE)	Read 597BB-597EE Use what kids leaned in unit 6 about fraction bar model to the number line Number of divisions between 0-1 indicate the denominator Equivalent fractions are in lesson 4 If hard to compare time as fraction, convert to minutes
7.3	**I can** • understand that the size of a fraction depends on the size of the whole. **Formative Assessment:** Ask students to describe how to compare fractional parts of different-size wholes when the fractions are the same, and how to compare fractional parts of same-size wholes when the fractions are different.	NF.2 SMP1 SMP3 SMP4 SMP6 SMP8	SAB p235 (E) SAB p236 (E) HW p153 (NE) R p154 (NE)	Read 597BB-597EE, 597JJ Use pictures (pizza) to visualize 1/8 of a BIGGER whole is greater than 1/8 of a smaller whole Don't overcomplicate fraction word problems – FOCUS on reading problem carefully with all parts identified to figure out any possible calculations

Quiz 1			AG p100 (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: common denominator, equivalent fractions, simplify

<u>Common Core State Standards for Math [CCSS-M]</u>	<u>Common Core Standards of Mathematical Practices [SMPs]</u>
CC.NF.1: Explain why a fraction a/b is equivalent to a fraction (n ⨯ a)/(n ⨯ b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.4.NF.2: Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	CC.K-12.MP.2: Reason abstractly and quantitatively. CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.NF.5: Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.	CC.K-12.MP.4: Model with math. CC.K-12.MP.5: Use appropriate tools strategically.
CC.MD.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	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
7.4	**I can** • find equivalent fractions using multiplication. **Formative Assessment:** Ask students to explain how to find a fraction equivalent to ¾. Their answers may involve using fraction bars, or multiplying numerator and denominator by the same number.	NF.1 SMP1 SMP3 SMP5 SMP6	SAB p237 (E) SAB p238 (E) SAB p239 (E) SAB p240 (E) HW p155 (NE) R p156 (NE)	Read 597BB read teaching note 622 Encourage drawings or use strips if needed Fractions greater than 1 and mixed numbers are different ways to represent the same distance on the number line – look for the relationships! Number lines to explore fraction benchmarks Identify that lesser fractions and mixed numbers are located to the left and greater factions are located to the right Equivalent fractions – labeling number lines in different ways kids figure out that different labels for the same point are equivalent fractions Fraction bar models and multiplication table help to see equivalent fractions Seeing 1/3 partitioned into smaller parts to get 2/6 – this helps kids see why you can multiply and divide the numerator an denominator by forms of 1 (2/2) to find equivalent fractions Kids need to connect their understanding of fraction bar models to the mult. Table to solidify this understanding

7.5	**I can** • find equivalent fractions using division. **Formative Assessment:** Ask students to explain why equivalent fractions are the same size even though the number and size of the parts differ.	NF.1 SMP1 SMP3 SMP4 SMP5 SMP6	SAB p241 (E) SAB p242 (E) SAB p243 (E) SAB p244 (E) HW p157 (NE) R p158 (NE)	Read 597BB READ teacher note! 630!! Equivalent = multiply or divide to get resulting fraction Simplify = is equivalent but less than original fraction
7.6	**I can** • compare fractions with unlike denominators. **Formative Assessment:** Ask students to explain how to compare the fractions 7/12 and 3/8. Students' methods should include a description of how to find a common denominator and write equivalent fractions before comparing.	NF.1 NF.2 NF.5 SMP1 SMP3 SMP6 SMP7 SMP8	SAB p245 (E) SAB p246 (E) SAB p247 (E) SAB p248 (E) HW p159 (NE) R p160 (NE)	Read 597BB-597EE, 597JJ careful not to over teach each activity in this lesson – they build tightly Like denominator = common denominator READ 641 note! Least common denominator is not necessary Grade 4 only required to add fractions with like denominators and fractions with denominators of 10 and 100
7.7	**I can** • make and use line plots with fractions. **Formative Assessment:** Have students verbally explain how to use a line plot to display data. Their description should include labeling a number line, making a mark for each data item, and adding a title.	MD.4 SMP1 SMP3 SMP4 SMP6	SAB p249 (E) SAB p250 (E) HW p161 (NE) R p162 (NE)	Read 597JJ line plot = dot plot
Quiz 2			AG p101 (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: Understanding Decimals
- About 7 days. Suggested date of completion:

Vocabulary: decimal number, hundredths, tenths

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.NF.1: Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.4.NF.2: Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.NF.6: Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.	CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.4.NF.7: Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	CC.K-12.MP.5: Use appropriate tools strategically.
CC.4.MD.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	CC.K-12.MP.6: Attend to precision.
	CC.K-12.MP.4: Model with math.
	CC.K-12.MP.7: Look for and make use of structure.
CC.MD.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	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
7.8	**I can** • model related fractions, decimals, and mixed numbers. **Formative Assessment:** Ask students to name a fraction and a decimal that represent 60 cents as part of 1 dollar. They may give either or both of the fractions 6/10 and 60/100 and either or both of the decimals 0.60 and 0.6.	NF.6 SMP1 SMP3 SMP4 SMP6 SMP8	SAB p253 (E) SAB p254 (E) SAB p255 (E) SAB p256 (E) HW p163 (NE) R p164 (NE)	Read 597FF Kids use what know about dimes, pennies, dollars and fractional parts of a set to relate fractions and decimals Goal – get kids to think of hundredths as fraction, decimal, pennies in a dollar AND tenths as dimes in a dollar (when dollar represents 1 whole) Huge help – 0.1 = 1 dime = 0.10 … 0.2 = 2 dimes = 0.20… 0.5 = 5 dimes = 0.50 (Don't ignore the decimal numbers) READ 656 note!! SAB – bottom number tells number of equal parts, top number tells how many equal parts we are putting together Mixed number is the whole number plus the fraction! Discuss this relationship!!!
7.9	**I can** • recognize equivalent tenths and hundredths. • model decimal numbers in tenths and in hundredths. **Formative Assessment:** Ask students to explain why 0.7 = 0.70. Their explanations may involve dimes and pennies, tenths and hundredths bars, or multiplication of the numerator and denominator by 10.	NF.6 MD.2 SMP1 SMP2 SMP3 SMP5 SMP6 SMP7	SAB p257 (E) SAB p258 (E) HW p165 (NE) R p166 (NE)	Read 597FF-597II relationship of tenths and hundredths is fundamental concept of decimals so is concept that tenths are larger than hundredths and fractions can model this fact Fraction bars into tenths and hundredths – this emphasizes thinking of fractions and decimals as parts of a whole Stacking the bars, and number line with decimals and fractions kids can visualize the relationship -

				placing a D in the bar model can connect the concept back to money too!!! Secret code cards are important!!!!
7.10	**I can** • write and compare decimals in tenths and hundredths. **Formative Assessment:** Ask students to explain why 0.8 > 0.5 using one or more of the methods taught in this lesson.	NF.6 NF.7 MD.2 SMP1 SMP2 SMP3 SMP5 SMP6 SMP7 SMP8	SAB p259 (E) SAB p260 (E) HW p167 (NE) R p168 (NE)	Read 597FF-597II comparing decimal numbers is same as comparing whole numbers – start farthest to the left Careful not to overlook the decimal point
7.11	**I can** • read, write, and model decimals greater than 1. **Formative Assessment:** Ask students to describe how each place value in a decimal number is related to the place value to its left and to the place value to its right, and give examples.	NF.6 MD.2 SMP1 SMP3 SMP5 SMP6 SMP7 SMP8	SAB p261 (E) SAB p262 (E) HW p169 (NE) R p170 (NE)	Read 597FF-597II place value chart to help understand how to show and read decimals EMPHASIZE that the **ones place** NOT the decimal is the CENTER of the chart – tens/tenths and hundred/hundredths are symmetrical to the **ones place** Use the frame to help make and read numbers Cards help to write decimal in expanded form Remind kids 0.3 = 0.30!! Use secret code cards to check answers in this lesson and lesson 12

7.12	**I can** • read, write, and model decimals greater than 1. **Formative Assessment:** Ask students to describe as many methods as they know to compare decimals, then choose one of those methods and use it to compare 20.7 and 20.07.	NF.7 MD.2 SMP3 SMP5 SMP7 SMP8	SAB p263 (E) SAB p264 (E) HW p171 (NE) R p172 (NE)	Read 597FF-597II Comparing – get kids to reason that 0.2 is 0.20 so if compare 0.2 and 0.09 they know that 20/100 > 9/100 Kids need to understand place value in decimals in order to compare – placement of zero is HUGE! Keep an eye out that kids DO NOT think 520 greater than 95 so 0.520 greater than 0.95
7.13	Mathematical Practices	NF.1 NF.2 NF.6 NF.7 MD.4 SMP1 SMP2 SMP3 SMP4 SMP5 SMP6 SMP7 SMP8	SAB p265 (E) SAB p266 (E) HW p173 (NE) R p174 (NE)	Read 597JJ
Quiz 3			AG p102 (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 fractions in equivalent forms.
- 7B Compare fractions.
- 7C Read and make a line plot.
- 7D Compare decimals.
- 7E Understand and relate fractions, decimals, and word forms.
- 7F Solve real world problems.

Day 1: Final Formative Assessment - SAB p267-270

Day 2-4: Reteaching Activities – TE p706-710

Day 5: Assessment - Unit 7 Test AG p103-106

Unit 8: Geometry
15-17 Days

Math Background:
- Research - TE p711Q-711R
- Background - TE p711S-711

Learning Path:
- **Students:**
  - broaden their understanding of plane geometric figures.
  - Learn how to measure angles using a protractor and sort and classify angles and triangles.

- **Students apply their understanding of geometric properties:**
  - to identify certain types of quadrilaterals and to explore the relationships among quadrilaterals.
  - To explore the relationships between triangles and rectangles and the properties of line symmetry.

Big Idea 1: Measuring and Drawing Angles
- About 4 days. Suggested date of completion:

Vocabulary: point, line, line segment, endpoint, angle, ray, vertex, right angle, acute angle, obtuse angle, straight angle, degree, protractor, circle, reflex angle

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.MD.5: Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle Measurement. **CC.4.MD.5a:** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle Measurement: an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle" and can be used to measure angles. **CC.4.MD.5b:** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle Measurement: an angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees. **CC.4.MD.6:** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. **CC.4.MD.7:** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. **CC.4.G.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	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
8.1	**I can** • Draw and describe points, rays, angles, and other simple geometric figures. **Formative Assessment:** Ask students to explain how to draw an angle and to indicate the relationship between right, acute, and obtuse angles. Explanations should demonstrate an understanding that two rays with a common endpoint from an angle, and that an acute angle is smaller than a right angle while an obtuse angle is larger than a right angle.	MD.5 G.1 SMP3 SMP5 SMP6 SMP7 SMP8	SAB p273 (E) SAB p274 (E) SAB p275 (E) SAB p276 (E) SAB p276A (E) HW p175 (NE) R p176 (NE)	Read 711BB-711CC focus on understanding of the size of angles based on visual comparison (actual measure in lesson 2) identify, explore the properties and give time to draw is IMPORTANT – because it helps conceptualize the abstract definitions of plane figures The size of an angle as the amount of rotation or turn from one side of the angle to the other side – this is foundation to understanding a protractor and compare measurements to 90 degrees
8.2	**I can** • draw and measure angles. **Formative Assessment:** Ask students to discuss angle measure and degrees. Students should be able to verbalize that a degree is a turn through 1/360 of a circle. An angle measuring 90° represents a turn through 90/360°, or ¼ of the circle. The protractor shows degree measures from 0° to 180° and often has two scales to easily match the orientation of the angle being measured.	MD.5 MD.5a MD.5b MD.6 G.1 SMP3 SMP5 SMP6 SMP7	SAB p277 (E) SAB p278 (E) SAB p279 (E) SAB p280 (E) HW p177 (NE) R p178 (NE)	Read 711BB-711CC, 711HH focus on understanding of the size of angles based on visual comparison (actual measure in lesson 2) identify, explore the properties and give time to draw is IMPORTANT – because it helps conceptualize the abstract definitions of plane figures The size of an angle as the amount of rotation or turn from one side of the angle to the other side – this is foundation to understanding a protractor and compare measurements to 90 degrees
8.3	**I can** • identify, measure, and draw angles in a circle. **Formative Assessment:** Ask students to explain how to draw angles in a circle.	MD.5 MD.5a MD.5b MD.6 MD.7 G.1	SAB p281 (E) SAB p282 (E) HW p179 (NE) R p180 (NE)	Read 711BB-711CC apply understanding of circles and protractor to draw interior angles

	Students should explain that they can locate a point, draw a circle with that point as its center, draw a ray from the point to the circle, and then measure along the circle a given number of degrees and draw the other ray of the angle at that location.	SMP2 SMP3 SMP6 SMP8		
Quiz 1			AG p (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: Triangles and Angle Measurement
- About 4 days. Suggested date of completion:

Vocabulary: triangle, right triangle, obtuse triangle, acute triangle, congruent, equilateral triangle, isosceles triangle, scalene triangle, adjacent angles, compose, decompose

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.MD.6: Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. **CC.4.MD.7:** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. **CC.4.G.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **CC.4.G.2:** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	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
8.4	**I can** • draw and classify triangles by their angles and sides. **Formative Assessment:** Ask students to classify a triangle with angles measuring 45°m, 45°, and 90° and two sides measuring 7 cm and 7 cm. Students should be able to name this triangle as a right isosceles triangle because it has a right angle and has two sides with the same length.	G.1 G.2 SMP3 SMP5 SMP6 SMP7 SMP8	SAB p283 (E) SAB p284 (E) SAB p285 (E) SAB p286 (E) SAB p287 (E) SAB p288 (E) HW p181 (NE) R p182 (NE)	Read 711DDD-711EE identify the angles and sides in a triangle – through observations focus on attributes of angles and sides! Watch out for how kids show acute triangles – adjust the lengths VOCAB is huge! Make sure kids say scalene and isosceles correctly Angle names match triangle names
8.5	**I can** • find unknown angle measures. **Formative Assessment:** Ask students to explain how to use an equation to find an unknown angle measure. Students should explain that the measure of an angle is the sum of its parts. If an angle is formed by adjacent angles, you add the sum of the measures of the smaller angles to get the measure of the whole angle. If you know the measure of a whole angle and the measure of one of its parts, you can subtract the known measure from the total angle measure to find the measure of the other part.	MD.6 MD.7 G.1 SMP1 SMP2 SMP3 SMP5 SMP6	SAB p289 (E) SAB p290 (E) SAB p291 (E) SAB p292 (E) HW p183 (NE) R p184 (NE)	Read 711DD-711EE adding angle measures of two adjacent angles – this concept lays the foundation that students will need about angle pairs Apply add/sub of angles to find unknown angle measures Solving equations involving angles is beneficial because it helps students connect their algebraic and geometric understandings
8.6	**I can** • add and subtract angle measures in real world situations. **Formative Assessment:** Ask students to give examples from their home, classroom, or elsewhere where they could use an equation to find an unknown angle measure. Students	MD.7 SMP1 SMP2 SMP3 SMP4 SMP6	SAB p293 (E) SAB p294 (E) HW p185 (NE) R p186 (NE)	Read 711DD-711EE

	should be able to give examples such as finding the two angles on either side of a door when it is open (two parts of a right angle) or the angles formed where two streets meet. (One street represents a straight angle while two adjacent angles are formed where another street crosses it.)			
Quiz 2			AG p (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: Analyzing Quadrilaterals
- About 4 days. Suggested date of completion:

Vocabulary: parallel, perpendicular, quadrilateral, adjacent, opposite, trapezoid, parallelogram, rhombus, rectangle, square, diagonal, congruent, vertex

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.G.1: Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **CC.4.G.2:** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	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
8.7	**I can** • demonstrate understanding of parallel and perpendicular figures. **Formative Assessment:** Ask students to explain how to decide whether two lines are parallel, perpendicular, or neither. Students should explain that lines that extend forever without crossing are parallel lines. When lines do cross, they can cross in two ways; either at right angles or at other angles. When the lines meet at right angles, the lines are perpendicular.	G.1 SMP1 SMP3 SMP5 SMP6 SMP7	SAB p297 (E) SAB p298 (E) SAB p299 (E) SAB p300 (E) HW p187 (NE) R p188 (NE)	Read 711FF-711HH vocab is huge – and use it to identify quads helps give meaningful context and be able to apply them Represent relationships and categorizing helps to organize kids thinking Encourage drawing parallel lines that are diagonal
8.8	**I can** • name and classify quadrilaterals based on sides and angles. **Formative Assessment:** Ask students to explain how to identify a quadrilateral by its type. Students should explain that quadrilaterals with parallel sides may be trapezoids (exactly one pair of opposite sides parallel). If the quadrilateral is a parallelogram, then it may be a rhombus (all sides equal) or a rectangle (all angles right angles). If the quadrilateral is a rhombus or a rectangle, it may also be a square (if it has both 4 equal sides and 4 right angles).	G.1 G.2 SMP1 SMP3 SMP5 SMP6 SMP7	SAB p301 (E) SAB p302 (E) SAB p303 (E) SAB p304 (E) SAB p304A (E) HW p189 (NE) R p190 (NE)	Read 711FF-711GG
8.9	**I can** • decompose quadrilaterals and triangles into other figures.. **Formative Assessment:** Ask students how to divide quadrilaterals and triangles into	G.1 G.2 SMP3 SMP5 SMP6	SAB p305 (E) SAB p306 (E) SAB p307 (E) SAB p308 (E) SAB p309 (E) SAB p310 (E)	Read 711FF-711GG use concept of diagonal to explore the relationship between triangles and quads Diagonal divides a quad into 2 triangles with same size and shape – this forms basis for formulas for the

	other figures. Students should explain that a quadrilateral can be separated into two triangles by each of its diagonals. A triangle can be separated into two right triangles by a perpendicular segment drawn from a vertex to the opposite side.	SMP7 SMP8	HW p191 (NE) R p192 (NE)	area of triangle and parallelograms Drawing perpendicular lines helps kids identify the altitude or height of a figure without right angles
Quiz 3			AG p (E)	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Big Idea 4: Analyzing Polygons

- About 4 days. Suggested date of completion:

Vocabulary: polygon, line symmetry, line of symmetry

Common Core State Standards for Math [CCSS-M]	Common Core Standards of Mathematical Practices [SMPs]
CC.4.OA.5: Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. **CC.4.G.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **CC.4.G.2:** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	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
8.10	**I can** • sort triangles and quadrilaterals by a number of different rules. **Formative Assessment:** Ask students to review how to sort triangles and quadrilaterals by angles and sides. Students should be able to give examples of ways to classify the figures in a group of polygons, such as sorting by sides to group all the figures in a set that have perpendicular sides and all the figures in the group that do not have perpendicular sides.	G.1 G.2 SMP3 SMP5 SMP6 SMP7 SMP8	SAB p311 (E) SAB p312 (E) SAB p312A (E) HW p193 (NE) R p194 (NE)	Read 711FF-711GG polygons can be sorted in more than one way
8.11	**I can** • recognize and draw lines of symmetry. • determine when figures have line symmetry. **Formative Assessment:** Ask students what they know about line symmetry and lines of symmetry. Students should be able to explain that a figure has line symmetry if it can be folded in half with one half lying directly on top of the other. The line used to do the folding is called the line of symmetry.	G.3 SMP3 SMP5 SMP6 SMP8	SAB p313 (E) SAB p314 (E) SAB p315 (E) SAB p316 (E) HW p195 (NE) R p196 (NE)	Read 711FF-711GG line of symmetry divides a figure in half so that if folded matches perfectly Drawing of lines helps solidify understanding of symmetry Use graph paper to help visualize symmetry in figures
8.12	Mathematical Practices	OA.5 G.1 G.2 G.3 SMP1-8	SAB p317 (E) SAB p318 (E) HW p197 (NE) R p198 (NE)	Read 711H

Quiz 4			AG p (E)	
Reteach			To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.	

Unit 8: Enrichment/Intervention Loop
- About 3-5 days. Suggested date of completion:

Unit Test Objectives
- 8A Draw and identify points, lines, line segments, rays, perpendicular lines, and parallel lines.
- 8B Draw, classify, and measure angles; measure angles in a circle.
- 8C Classify two-dimensional figures by their angles and sides.
- 8D Use an addition or subtraction equation to find an unknown angle measure.
- 8E Solve real world addition and subtraction problems involving angle measures.
- 8F Draw and identify lines of symmetry.

Day 1: Final Formative Assessment - SAB p319-322

Day 2-4: Reteaching Activities – TE p802-806

Day 5: Assessment - Unit 8 Test AG