

UNIT:

Topic 1: Numeration

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 10 (Topic Test)
- Total Instructional Time: 10 Days

Anchor Standard(s):

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Unit Essential Questions:

How are numbers read and written?

How can whole numbers be rounded?

Student Learning Goals:

Students will be able to:

- Read and write 3-digit numbers
- Locate and write numbers on a number line
- Identify the pattern on a number line to prepare for rounding
- Find the halfway number between two consecutive tens, two consecutive hundreds, and two consecutive thousands
- Round two-digit and three-digit whole numbers to the nearest ten or hundred by comparing to the number halfway between or by using place value
- Round four digit whole numbers to the nearest ten or hundred by using place value
- Make an organized list to represent information given in a problem

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Numeration Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Numeration	4	3	2	1
I can read and write 3 digit numbers in expanded, standard, and word form.				
I can locate and write numbers on a number line.				
I can identify a pattern on a number line to prepare for rounding.				
I can find the number halfway between two tens, two hundreds, or two thousands.				
I can round two digit numbers to the nearest ten.				
I can round three digit numbers to the nearest ten or hundred.				
I can round four digit numbers to the nearest ten or hundred.				
I can make an organized list to represent information given in a problem.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: Our number system is based on groups of ten. Whenever we get 10 in one place value, we move to the next greater place value.</p> <p>Lesson 2: Each whole number can be associated with a unique point on the number line. Zero is the least whole number on the number line and there is no greatest number. The distance between any two consecutive whole numbers on a given number line is the same.</p> <p>Lesson 3: Equal distances on the number line must correspond to equal differences in the numbers. The scale on some graphs is a number line.</p> <p>Lesson 4: The rounding process is based on knowing the halfway number between multiples of 10, 100, and so on.</p> <p>Lesson 5: Rounding is a process for finding the multiple of 10, 100, and so on, closest to a given number.</p> <p>Lesson 6: Rounding is a process for finding the multiple of 10, 100, and so on, closest to a given number.</p> <p>Lesson 7: Some problems can be solved by generating a list of outcomes and organizing that list in a systematic way so all outcomes are accounted for.</p>	<p>Lesson 1: Digits, place value, standard form, expanded form, word form</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: Round</p> <p>Lesson 6: No new vocabulary introduced</p> <p>Lesson 7: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015

Online subscription: Pearson Realize

Manipulatives: Place value blocks, number lines

Alaska Standards Addressed & Assessed:

Use place value understanding and properties of operations to perform multi-digit arithmetic.

3.NBT.1. Use place value understanding to round whole numbers to the nearest 10 or 100.

UNIT:

Topic 2: Number Sense: Addition and Subtraction

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 10 (Topic Test)
- Total Instructional Time: 10 Days

Anchor Standard(s):

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Unit Essential Questions:

How can sums and differences be found mentally?

How can sums and differences be estimated?

Student Learning Goals:

Students will be able to:

- Use concrete materials and concepts of addition to model the Commutative, Associative, and Identity Properties of Addition
- Recognize situations when subtraction is used to solve a problem and write number sentences
- Solve problems by adding with mental math
- Solve problems by subtracting with mental math
- Solve problems by estimating sums
- Solve problems by estimating differences
- Solve word problems and check for reasonableness

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Number Sense: Addition and Subtraction Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Number Sense: Addition and Subtraction	4	3	2	1
I can use model the Properties of Addition: Commutative, Associative, and Identity.				
I can recognize situations when subtraction is used to solve a problem and I can write the subtraction number sentence to solve it.				
I can solve problems by adding with mental math.				
I can solve problems by subtracting with mental math.				
I can solve problems by estimating sums.				
I can solve problems by estimating differences.				
I can solve word problems and check for reasonableness.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: Some real-world problems involving joining, separating, part-part-whole, or comparison can be solved using addition. Two or more numbers can be added in any order; and the sum of any number and 0 is that number.</p> <p>Lesson 2: Some real-world problems involving joining, separating, part-part-whole, or comparison can be solved using subtraction. Fact families show addition and subtraction relationships.</p> <p>Lesson 3: There is more than one way to do a mental calculation. Techniques for doing addition calculations mentally like breaking apart numbers and making tens, involve changing the numbers or the expressions so the calculation is easy to do mentally and has the same answer as the original calculation.</p> <p>Lesson 4: There is more than one way to do a mental calculation. Techniques for doing subtraction calculations mentally like compensation and equal additions involve changing the numbers or the expressions so the calculation is easy to do mentally and has the same answer as the original calculation.</p> <p>Lesson 5: There is more than one way to estimate a sum. Rounding gives one way to estimate sums.</p> <p>Lesson 6: There is more than one way to estimate a difference. Using rounding and substituting compatible numbers are two gives ways to estimate differences by replacing numbers that are close and easy to compute mentally.</p>	<p>Lesson 1: Addends, sum, Commutative (order) Property, Associative (grouping) Property, Identity (zero) Property of Addition</p> <p>Lesson 2: Fact family, difference</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: Estimate, compatible numbers</p> <p>Lesson 6: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

Lesson 7:
Answers to problems should always be checked for reasonableness, and this can be done in different ways. One way is to use estimation and another is to check the answer against the question and conditions of the problem.

Lesson 7:
No new vocabulary introduced

Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015
Online subscription: Pearson Realize
Manipulatives: Two color counters

Alaska Standards Addressed & Assessed:

Use place value understanding and properties of operations to perform multi-digit arithmetic.
3.NBT.2. Use strategies and/or algorithms to fluently add and subtract with numbers up to 1000, demonstrating understanding of place value, properties of operations, and/or the relationship between addition and subtraction.

UNIT:

Topic 3: Using Place Value to Add and Subtract

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 15 (Topic Test)
- Total Instructional Time: 15 Days

Anchor Standard(s):

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Unit Essential Questions:

What are standard procedures for adding and subtracting whole numbers?

Student Learning Goals:

Students will be able to:

- Solve 3 digit addition problems using an expanded algorithm
- Add 3 digit numbers using place value blocks or pictures and the standard addition algorithm
- Add 3 digit numbers using paper and pencil methods
- Add 3 or more 2 and 3 digit numbers using paper and pencil methods
- Draw a picture to solve a problem
- Solve 3 digit subtraction problems by breaking them into smaller, easier subtraction problems
- Subtract 3 digit numbers using place value blocks or pictures and the standard subtraction algorithm
- Subtract 3 digit numbers using paper and pencil methods
- Determine whether both sides of an equation are equal and find the value of the unknown
- Solve problems by writing a number sentence
- Solve problems by writing a number sentence based on a picture they have drawn describing the problem

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Using Place Value to Add and Subtract Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
	4	3	2	1
Addition and Subtraction				
I can solve 3 digit addition problems using an expanded procedure.				
I can add 3 digit numbers using place value blocks or pictures using the standard procedure.				
I can add 3 digit numbers using paper and pencil standard procedure.				
I can add 3 or more 2 digit numbers.				
I can add 3 or more 3 digit numbers.				
I can draw a picture to solve a problem.				
I can solve 3 digit subtraction problems by breaking them into smaller, easier subtraction problems.				
I can subtract 3 digit numbers using place value blocks or pictures using the standard procedure.				
I can subtract 3 digit numbers using paper and pencil standard procedure.				
I can determine whether both sides of an equation are equal and find the value of the unknown.				
I can solve problems by writing a number sentence based on a picture I have drawn describing the problem.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: The expanded algorithm for adding 3 digit numbers breaks the addition problem into a series of easier problems based on place value. Answers to the simpler problems are added together to determine the final sum.</p> <p>Lesson 2: Models and the standard algorithm for adding 3 digit numbers are just an extension to the hundreds place of the models and standard algorithm for adding 2 digit numbers.</p> <p>Lesson 3: Models and the standard algorithm for adding 3 digit numbers are just an extension to the hundreds place of the models and standard algorithm for adding 2 digit numbers.</p> <p>Lesson 4: Three or more whole numbers can be added in any order.</p> <p>Lesson 5: Information in a problem can often be shown using a picture or diagram and used to understand and solve the problem. Some problems can be solved by writing and completing a number sentence or equation.</p> <p>Lesson 6: The expanded algorithm for subtracting 3 digit numbers breaks the subtraction problem into a series of easier problems based on place value. Answers to the simpler problems are used to find the final difference.</p> <p>Lesson 7: Models and the standard algorithm for subtracting 3 digit numbers are just an extension to the hundreds place of the models and standard algorithm for subtracting 2 digit numbers.</p>	<p>Lesson 1: No new vocabulary introduced</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: No new vocabulary introduced</p> <p>Lesson 6: No new vocabulary introduced</p> <p>Lesson 7: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

<p>Lesson 8: Models and the standard algorithm for subtracting 3 digit numbers are just an extension to the hundreds place of the models and standard algorithm for subtracting two digit numbers, In the traditional subtraction algorithm for 3 digit numbers, sometimes it is necessary to rename 1 hundred as 10 tens or 1 ten as 10 ones.</p> <p>Lesson 9: Place value relationships can help simplify subtracting across zeros.</p> <p>Lesson 10: An equation shows a balance between what is on the right side and what is on the left side of the equal sign.</p> <p>Lesson 11: An equation shows a balance between what is on the right side and what is on the left side of the equal sign.</p> <p>Lesson 12: Sums and differences can be estimated and calculated using a variety of procedures.</p> <p>Lesson 13: Information in a problem can often be shown using a picture or diagram and used to understand and solve the problem. Some problems can be solved by writing and completing a number sentence.</p>	<p>Lesson 8: No new vocabulary introduced</p> <p>Lesson 9: No new vocabulary introduced</p> <p>Lesson 10: Equation</p> <p>Lesson 11: No new vocabulary introduced</p> <p>Lesson 12: Inverse operations</p> <p>Lesson 13: No new vocabulary introduced</p>	
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Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015
 Online subscription: Pearson Realize
 Manipulatives: Place value blocks, problem solving

Alaska Standards Addressed & Assessed:
Use place value understanding and properties of operations to perform multi-digit arithmetic.
 3.NBT.2. Use strategies and/or algorithms to fluently add and subtract with numbers up to 1000, demonstrating understanding of place value, properties of operations, and/or the relationship between addition and subtraction.

<p>UNIT: Topic 4: Meanings of Multiplication</p> <p>Grade Level: 3rd</p>	<p>Critical Dates/Timeline:</p> <ul style="list-style-type: none">• Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)• Topic Common Assessment: Day 8 (Topic Test)• Total Instructional Time: 8 Days
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Anchor Standard(s):
Represent and solve problems involving multiplication and division.
Understand properties of multiplication and the relationship between multiplication and division.
Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Unit Essential Questions:
What are different meanings of multiplication?
How are addition and multiplication related?

Student Learning Goals:
Students will be able to:

- Write multiplication sentences for repeated addition situations and find products
- Write multiplication sentences for arrays and use arrays to find products
- Write multiplication sentences and use the Commutative Property of Multiplication
- Write multiplication stories for given multiplication facts
- Use objects, words, pictures, numbers, and technology to provide a written explanation reflecting their understanding

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Meanings of Multiplication Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
	4	3	2	1
Meanings of Multiplication				
I can use write multiplication sentences for repeated addition situations and find products.				
I can write multiplication sentences for arrays and use arrays to find products.				
I can write multiplication sentences and use the Commutative Property of Multiplication.				
I can write multiplication stories for given multiplication facts.				
I can use objects, words, pictures, numbers, and technology to provide a written explanation reflecting their understanding.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: Some real-world problems involving joining or separating equal groups or comparison can be solved using multiplication.</p> <p>Lesson 2: Some real-world problems involving joining or separating equal groups or comparison can be solved using multiplication. An array involves joining equal groups and is one way to think about multiplication.</p> <p>Lesson 3: Two numbers can be multiplied in any order and the product remains the same.</p> <p>Lesson 4: Some real-world problems involving joining or separating equal groups or comparison can be solved using multiplication.</p> <p>Lesson 5: Mathematical explanations can be given using words, pictures, numbers, or symbols. A good explanation should be correct, simple, complete and easy to understand.</p>	<p>Lesson 1: Multiplication, factors, product</p> <p>Lesson 2: Array</p> <p>Lesson 3: Commutative Property of Multiplication (Order)</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>
<p>Anchor Text(s)/Additional Instructional Resources:</p> <p>Anchor Text: enVision Math: Pearson Realize © 2015 Online subscription: Pearson Realize Manipulatives: Place value blocks, problem solving</p>		

Alaska Standards Addressed & Assessed:

Represent and solve problems involving multiplication and division.

3.OA.1. Interpret products of whole numbers (e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each). For example, show objects in rectangular arrays or describe a context in which a total number of objects can be expressed as 5×7 .

3.OA.3. Use multiplication and division numbers up to 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

Understand properties of multiplication and the relationship between multiplication and division.

3.OA.5. Make, test, support, draw conclusions and justify conjectures about properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.)

- Commutative property of multiplication: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known.
- Associative property of multiplication: $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$.
- Distributive property: Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$.
- Inverse property (relationship) of multiplication and division.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

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

UNIT:

Topic 5: Multiplication Facts: Use Patterns

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 10 (Topic Test)
- Total Instructional Time: 10 Days

Anchor Standard(s):

Solve problems involving the four operations, and identify and explain patterns in arithmetic. Use place value understanding and properties of operations to perform multi-digit arithmetic.

Unit Essential Questions:

What are different meanings of multiplication?
How are addition and multiplication related?

Student Learning Goals:

Students will be able to:

- Use patterns to multiply with 2 and 5 as factors
- Use patterns to multiply with 9 as a factor
- Use patterns and properties to multiply with 0 and 1 as factors
- Use patterns to find products with factors of 2, 5, and 9
- Use patterns to multiply with 10 as a factor
- Use basic multiplication facts and number patterns to multiply by multiples of 10
- Solve for one problem and use the solution to complete a second problem

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Multiplication Facts: Use Patterns Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Multiplication Facts: Use Patterns	4	3	2	1
I can use patterns to multiply with 2 and 5 as factors.				
I can use patterns to multiply with 9 as a factor.				
I can use patterns and properties to multiply with 0 and 1 as factors.				
I can use patterns to multiply with 10 as a factor.				
I can use basic multiplication facts and number patterns to multiply by multiples of 10.				
I can solve one problem and use the solution to complete a second problem.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: There are patterns in the products for multiplication with factors 2 and 5.</p> <p>Lesson 2: There are patterns in the products for multiplication with a factor of 9.</p> <p>Lesson 3: There are patterns in the products for multiplication with factors 0 and 1. The product of 0 and any number is 0. The product of 1 and any number is that number.</p> <p>Lesson 4: There are patterns in the products for multiplication with factors 2, 5, and 9.</p> <p>Lesson 5: Patterns can be used to solve multiplication facts.</p> <p>Lesson 6: Basic multiplication facts and place-value patterns can be used to find products when one factor is a multiple of 10.</p> <p>Lesson 7: Sometimes the answer to a problem/question is needed to find the answer to another problem/question.</p>	<p>Lesson 1: Multiples</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: Zero and Identity (One) Property of Multiplication</p> <p>Lesson 4: Multiple</p> <p>Lesson 5: No new vocabulary introduced</p> <p>Lesson 6: No new vocabulary introduced</p> <p>Lesson 7: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>
<p>Anchor Text(s)/Additional Instructional Resources:</p> <p>Anchor Text: enVision Math: Pearson Realize © 2015 Online subscription: Pearson Realize Manipulatives: Hundreds pocket chart, two color counters</p>		

Alaska Standards Addressed & Assessed:

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

3.OA.8. Solve and create two-step word problems using any of the four operations. Represent these problems using equations with a symbol (box, circle, question mark) standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

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

Use place value understanding and properties of operations to perform multi-digit arithmetic.

3.NBT.3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80 , 10×60) using strategies based on place value and properties of operations.

UNIT:

Topic 6: Multiplication Facts: Use Known Facts

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 12 (Topic Test)
- Total Instructional Time: 12 Days

Anchor Standard(s):

Represent and solve problems involving multiplication and division.

Understand properties of multiplication and the relationship between multiplication and division.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Unit Essential Questions:

How can unknown multiplication facts be found by using known facts?

Student Learning Goals:

Students will be able to:

- Break apart a multiplication fact into the sum of two other facts
- Use known facts to find products with 3 as a factor
- Use known facts to find products with 4 as a factor
- Use known facts to find products with 6 and 7 as factors
- Use known facts to find products with 8 as a factor
- Multiply three numbers and use the Associative Property of Multiplication
- Use known facts and patterns to find products
- Multiply and find the number of possible combinations
- Solve multi-step problems

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Multiplication Facts: Use Known Facts Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
	4	3	2	1
Multiplication Facts: Use Known Facts				
I can break apart a multiplication fact into the sum of two other facts.				
I can use known facts to find products with 3 as a factor.				
I can use known facts to find products with 4 as a factor.				
I can use known facts to find products with 6 and 7 as factors.				
I can use known facts to find products with 8 as a factor.				
I can multiply three numbers and use the Associative Property of Multiplication.				
I can use known facts and patterns to find products.				
I can multiply and find the number of possible combinations.				
I can solve multi-step problems.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: The Distributive Property of Multiplication can be used to break a large array into two smaller arrays.</p> <p>Lesson 2: Basic multiplication facts with 3 as a factor can be found by breaking apart the unknown fact into known facts. The answers to the known facts are added to get the final product.</p> <p>Lesson 3: Basic multiplication facts with 4 as a factor can be found by breaking apart the unknown fact into known facts. The answers to the known facts are added to get the final product.</p> <p>Lesson 4: Basic multiplication facts with 6 and 7 as factors can be found by breaking apart the unknown fact into known facts. The answers to the known facts are added to get the final product.</p> <p>Lesson 5: Basic multiplication facts with 8 as a factor can be found by breaking apart the unknown fact into known facts. The answers to the known facts are added to get the final product.</p> <p>Lesson 6: Three or more numbers can be multiplied in any order.</p> <p>Lesson 7: Patterns and known facts can be used to find unknown multiplication facts.</p> <p>Lesson 8: Finding the number combinations that are possible between members of one group and the members of another group is one meaning of multiplication.</p>	<p>Lesson 1: Distributive Property of Multiplication</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: Zero and Identity (One) Property of Multiplication</p> <p>Lesson 4: Multiple</p> <p>Lesson 5: No new vocabulary introduced</p> <p>Lesson 6: Associative Property of Multiplication (Grouping)</p> <p>Lesson 7: No new vocabulary introduced</p> <p>Lesson 8: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

Lesson 9:
Some problems can be solved by first finding and solving a sub-problem and then using that answer to solve the original problem.

Lesson 9:
No new vocabulary introduced

Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015
Online subscription: Pearson Realize
Manipulatives: Two color counters, color tiles

Alaska Standards Addressed & Assessed:

Represent and solve problems involving multiplication and division.

3.OA.3. Use multiplication and division numbers up to 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

Understand properties of multiplication and the relationship between multiplication and division.

3.OA.5. Make, test, support, draw conclusions and justify conjectures about properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.)

- Commutative property of multiplication: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known.
- Associative property of multiplication: $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$.
- Distributive property: Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$.
- Inverse property (relationship) of multiplication and division.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

3.OA.8. Solve and create two-step word problems using any of the four operations. Represent these problems using equations with a symbol (box, circle, question mark) standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

UNIT:
Topic 7: Meanings of Division

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 9 (Topic Test)
- Total Instructional Time: 9 Days

Anchor Standard(s):

Represent and solve problems involving multiplication and division.
Understand properties of multiplication and the relationship between multiplication and division.

Unit Essential Questions:

How can unknown multiplication facts be found by using known facts?

Student Learning Goals:

Students will be able to:

- Use models to solve division problems involving sharing and record solutions using division number sentences
- Use models to solve division problems involving sharing and record solutions using division number sentences
- Use multiplication tables to find answers for division problems
- Solve word problems by writing equations that represent the problem situation
- Write and solve number stories involving division
- Solve problems by using objects and drawing a picture

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Meanings of Division Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Multiplication Facts: Use Patterns	4	3	2	1
I can use models to solve division problems involving sharing and record solutions using division number sentences.				
I can use multiplication tables to find answers for division problems.				
I can solve word problems by writing equations that represent the problem situation.				
I can write and solve number stories involving division.				
I can solve problems by using objects and drawing a picture.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: Some real-world problems involving joining or separating equal groups or comparison can be solved using division. Sharing involves separating equal groups and is one way to think about division.</p> <p>Lesson 2: Some real-world problems involving joining or separating equal groups or comparison can be solved using division. Repeated subtraction involves separating equal groups and is one way to think about division.</p> <p>Lesson 3: Any division problem can be thought of as a multiplication fact showing a missing factor. Then, an answer can be found using a multiplication table.</p> <p>Lesson 4: Frequently word problems can be solved by writing equations that represent the quantitative relationships involved.</p> <p>Lesson 5: Some real-world problems involving joining or separating equal groups or comparison can be solved using division. Sharing or repeated subtraction involve separating equal groups and is one way to think about division.</p> <p>Lesson 6: Information in a problem can be shown by using objects to act it out or by using a picture or diagram in order to understand and solve the problem.</p>	<p>Lesson 1: Division</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: No new vocabulary introduced</p> <p>Lesson 6: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015

Online subscription: Pearson Realize

Manipulatives: Two color counters, color tiles, multiplication table, color cubes

Alaska Standards Addressed & Assessed:**Represent and solve problems involving multiplication and division.**

3.OA.2. Interpret whole-number quotients of whole numbers (e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each). For example, deconstruct rectangular arrays or describe a context in which a number of shares or a number of groups can be expressed $56 \div 8 =$

3.OA.3. Use multiplication and division numbers up to 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

3.OA.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = ? \div 3$, $6 \times 6 = ?$

Understand properties of multiplication and the relationship between multiplication and division.

3.OA.6. Understand division as an unknown factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.

UNIT:

Topic 8: Division Facts

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 12 (Topic Test)
- Total Instructional Time: 12 Days

Anchor Standard(s):

Represent and solve problems involving multiplication and division.

Understand properties of multiplication and the relationship between multiplication and division.

Multiply and Divide up to 100.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Unit Essential Questions:

How can an unknown division fact be found by thinking of a related multiplication fact?

Student Learning Goals:

Students will be able to:

- Relate multiplication and division facts by using fact families
- Use fact families with divisors of 2, 3, 4, and 5
- Use fact families with divisors of 6 and 7
- Use fact families with divisors of 8 and 9
- Solve multi-step problems
- Use multiplication and division facts to find the value of an unknown in an equation
- Divide with 0 and 1
- Use multiplication and division facts to solve problems
- Draw a picture and write a number sentence to solve a division problem

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Division Facts Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Division Facts	4	3	2	1
I can write multiplication and division fact families.				
I can use fact families with divisors of 2, 3, 4, and 5.				
I can use fact families with divisors of 6 and 7.				
I can use fact families with divisors of 8 and 9.				
I can solve multi-step problems.				
I can use multiplication and division facts to find the value of an unknown number.				
I can divide with 0 and 1.				
I can use multiplication and division facts to solve real-world problems.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: Multiplication and division have an inverse relationship.</p> <p>Lesson 2: The inverse relationship between multiplication and division can be used to find division facts; every division fact has a related multiplication fact. Different numerical expressions can have the same value. Or, the value of one expression can be less than or greater than the value of the other expression.</p> <p>Lesson 3: The inverse relationship between multiplication and division can be used to find division facts; every division fact has a related multiplication fact.</p> <p>Lesson 4: The inverse relationship between multiplication and division can be used to find division facts; every division fact has a related multiplication fact.</p> <p>Lesson 5: Sometimes the answer to one problem/question is needed to find the answer to another problem/question.</p> <p>Lesson 6: Multiplication and division equations show a balance between what is on the right side and what is on the left side of the equal sign.</p> <p>Lesson 7: Any number (except 0) divided by itself is equal to 1. Any number divided by 1 is that number. Zero divided by any number (except 0) is zero. Zero cannot be a divisor.</p> <p>Lesson 8: Patterns and known facts can be used to find unknown multiplication facts. Division facts can be found by thinking of a related</p>	<p>Lesson 1: Dividend, divisor, quotient</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: Variable</p> <p>Lesson 6: No new vocabulary introduced</p> <p>Lesson 7: No new vocabulary introduced</p> <p>Lesson 8: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

multiplication fact.

Lesson 9:

Information given in a problem can often be shown in a picture or diagram that can be used to understand and solve the problem. Some problems can be solved by writing and completing a number sentence or equation.

Lesson 9:

No new vocabulary introduced

Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015

Online subscription: Pearson Realize

Manipulatives: Two color counters, color tiles

Alaska Standards Addressed & Assessed:

Represent and solve problems involving multiplication and division.

3.OA.3. Use multiplication and division numbers up to 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).

Understand properties of multiplication and the relationship between multiplication and division.

3.OA.6. Understand division as an unknown factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.

Multiply and Divide up to 100.

3.OA.7. Fluently multiply and divide numbers up to 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

3.OA.8. Solve and create two-step word problems using any of the four operations. Represent these problems using equations with a symbol (box, circle, question mark) standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

UNIT:
Topic 9: Understanding Fractions

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 11 (Topic Test)
- Total Instructional Time: 11 Days

Anchor Standard(s):

Fractions: Develop understanding of fractions as numbers
Geometry: Reason with shapes and their attributes

Unit Essential Questions:

What are different interpretations of a fraction?

Student Learning Goals:

Students will be able to:

- Identify and divide regions into equal-sized parts
- Identify and draw fractional parts of a region
- Identify and draw fractional parts of a set
- Identify fractional parts of a set
- Locate and compare fractions on a number line
- Identify fractional parts and mixed numbers on a number line
- Identify and draw fractional parts of a length
- Write to explain whether an answer is correct or not

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Understanding Fractions Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Understanding Fractions	4	3	2	1
I can identify and divide regions into equal-sized parts.				
I can identify and draw fractional parts of a region.				
I can identify and draw fractional parts of a set.				
I can locate and compare fractions on a number line.				
I can identify fractional parts and mixed numbers on a number line.				
I can identify and draw fractional parts of length.				
I can write to explain whether an answer is correct or not.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: A region can be divided into equal-sized parts in different ways. Equal-sized parts of a region have the same area but not necessarily the same shape.</p> <p>Lesson 2: A fraction describes the division of a whole (region, set, segment) into equal parts. The bottom number in a fraction tells how many equal parts the whole is divided into. The top number tells how many equal parts are indicated. A unit fraction has a numerator of 1.</p> <p>Lesson 3: A fraction describes the division of a whole (region, set, segment) into equal parts. The bottom number in a fraction tells how many equal parts the whole is divided into. The top number tells how many equal parts are indicated. A fraction is relative to the size of the whole.</p> <p>Lesson 4: Finding a unit fractional part of a whole is the same as dividing the whole by the denominator of the fraction.</p> <p>Lesson 5: Points between whole numbers on a number line can be labeled with fractions or mixed numbers. The denominator of the fraction can be determined by counting the number of equal parts between two consecutive whole numbers.</p> <p>Lesson 6: Points between whole numbers on a number line can be labeled with fractions or mixed numbers. The denominator of the fraction can be determined by counting the number of equal parts between two consecutive whole numbers.</p> <p>Lesson 7: A fraction describes the division of a whole (region, set, segment) into equal parts. The bottom number in a fraction tells how many equal</p>	<p>Lesson 1: Halves, thirds, fourths, fifths, sixths, eighths, tenths, twelfths</p> <p>Lesson 2: fraction, unit fraction, numerator, denominator</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: Unit fraction</p> <p>Lesson 5: Mixed numbers</p> <p>Lesson 6: Mixed numbers</p> <p>Lesson 7: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

parts the whole is divided into. The top number tells how many equal parts are indicated. A fraction is relative to the size of the whole.

Lesson 8:

Mathematical explanations can be given using words, drawings, pictures, numbers, or symbols. A good explanation should be correct, simple, complete and easy to understand.

Lesson 8:
No new vocabulary introduced

Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015

Online subscription: Pearson Realize

Manipulatives: Two color counters, centimeter paper, fractional strips

Alaska Standards Addressed & Assessed:

Number and Operations: Fractions

(limited in this grade to fractions with denominators 2, 3, 4, 6, and 8)

Develop understanding of fractions as numbers.

3.NF.1. Understand a fraction $\frac{1}{b}$ (e.g., $\frac{1}{4}$) as the quantity formed by 1 part when a whole is partitioned into b (e.g., 4) equal parts; understand a fraction $\frac{a}{b}$ (e.g., $\frac{2}{4}$) as the quantity formed by a (e.g., 2) parts of size $\frac{1}{b}$. (e.g., $\frac{1}{4}$)

3.NF.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.

a. Represent a fraction $\frac{1}{b}$ (e.g., $\frac{1}{4}$) on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b (e.g., 4) equal parts. Recognize that each part has size $\frac{1}{b}$ (e.g., $\frac{1}{4}$) and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ (e.g., $\frac{1}{4}$) on the number line.

b. Represent a fraction $\frac{a}{b}$ (e.g., $\frac{2}{8}$) on a number line diagram or ruler by marking off a lengths $\frac{1}{b}$ (e.g., $\frac{1}{8}$) from 0. Recognize that the resulting interval has size $\frac{a}{b}$ (e.g., $\frac{2}{8}$) and that its endpoint locates the number $\frac{a}{b}$ (e.g., $\frac{2}{8}$) on the number line.

Geometry: Reason with shapes and their attributes

3.G.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of the shape.

UNIT:

Topic 10: Fraction Comparison and Equivalence

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 12 (Topic Test)
- Total Instructional Time: 12 Days

Anchor Standard(s):

Number and Operations: Develop understanding of fractions as numbers.

Operations and Algebraic Thinking: Represent and solve problems using multiplication and division

Unit Essential Questions:

What are different ways to compare fractions?

Student Learning Goals:

Students will be able to:

- Use models to compare fractions with the same denominator
- Compare and order fractions
- Use a number line to compare fractions
- Find equivalent fractions
- Use a number line to find equivalent fractions
- Write whole numbers as fractions
- Draw a picture to solve a problem

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Fraction Comparison and Equivalence Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Fraction Comparison & Equivalence	4	3	2	1
I can use models to compare fractions with the same denominator.				
I can use models to compare fractions with different denominators.				
I can use a number line to compare fractions.				
I can create a set of equivalent fractions.				
I can use a number line to find equivalent fractions.				
I can write whole numbers are fractions.				
I can draw a picture to solve a problem.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: If two fractions have the same denominator, the fraction with the greater numerator is the greater fraction.</p> <p>Lesson 2: If two fractions have the same numerator, the fraction with the lesser denominator is the greater fraction.</p> <p>Lesson 3: A fraction is relative to the size of the whole. Models can be used to compare fractional amounts.</p> <p>Lesson 4: You can compare two fractions by marking their locations on a number line.</p> <p>Lesson 5: The same fractional amount can be represented by an infinite set of different but equivalent fractions.</p> <p>Lesson 6: There are many fraction names for each point on a number line. These points can be used to name equivalent fractions.</p> <p>Lesson 7: If a fraction aligns with a whole number on a number line or to a whole number fraction strip, the whole number is equivalent to that fraction.</p> <p>Lesson 8: Information in a problem can often be shown using a picture or diagram. These can be used to understand and solve the problem.</p>	<p>Lesson 1: No new vocabulary introduced</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: Equivalent fractions, simplest form</p> <p>Lesson 6: No new vocabulary introduced</p> <p>Lesson 7: No new vocabulary introduced</p> <p>Lesson 8: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015

Online subscription: Pearson Realize

Manipulatives: Fractional strips, number lines, three strips of 8.5 in. x 1 in. paper

Alaska Standards Addressed & Assessed:**Operations and Algebraic Thinking: Represent and solve problems using multiplication and division****Number and Operations: Develop understanding of fractions as numbers.**

(limited in this grade to fractions with denominators 2, 3, 4, 6, and 8)

3.NF.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.

a. Represent a fraction $1/b$ (e.g., $1/4$) on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b (e.g., 4) equal parts. Recognize that each part has size $1/b$ (e.g., $1/4$) and that the endpoint of the part based at 0 locates the number $1/b$ (e.g., $1/4$) on the number line.

3.NF.3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent if they are the same size (modeled) or the same point on a number line.

b. Recognize and generate simple equivalent fractions (e.g., $1/2 = 2/4$, $4/6 = 2/3$). Explain why the fractions are equivalent (e.g., by using a visual fraction model).

c. Express and model whole numbers as fractions, and recognize and construct fractions that are equivalent to whole numbers.

For example: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

d. Compare two fractions with the same numerator or the same denominator by

reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions (e.g., by using a visual fraction model)

UNIT:

Topic 11: Two-Dimensional Shapes and Their Attributes

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 8 (Topic Test)
- Total Instructional Time: 8 Days

Anchor Standard(s):

Geometry: Reason with shapes and their attributes.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Unit Essential Questions:

How can two-dimensional shapes be described, classified, and analyzed?

Student Learning Goals:

Students will be able to:

- Identify and classify polygons
- Identify and classify quadrilaterals
- Classify shapes according to their attributes
- Make and test generalizations
- Solve a problem by first solving a simpler problem

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Geometry: Two-Dimensional Shapes and Their Attributes Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Geometry: Two-Dimensional Shapes and their Attributes	4	3	2	1
I can describe the requirements of a polygon.				
I can identify and classify polygons by their sides and angles: triangle, octagon, quadrilateral, pentagon, decagon, and hexagon.				
I can identify parallel lines.				
I can identify and describe quadrilaterals.				
I can compare quadrilaterals.				
I can classify shapes according to their attributes.				
I can make generalizations and test them.				
I can solve a problem by first solving a simpler problem.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: Plane shapes have many properties that make them different from one another.</p> <p>Lesson 2: Polygons can be described and classified by their sides and angles.</p> <p>Lesson 3: Plane shapes have many properties that make them different from one another.</p> <p>Lesson 4: Commonalities in attributes of objects or situations can be found and used to test generalizations about relationships.</p> <p>Lesson 5: Some problems can be solved by breaking apart or changing the problem into simpler ones and using those solutions to solve the original problem.</p>	<p>Lesson 1: Side, vertex, polygon, diagonal, concave, convex, triangle, quadrilateral, hexagon, pentagon, octagon, decagon</p> <p>Lesson 2: parallel sides, parallelogram, trapezoid, rhombus, square, rectangle, right angle</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: Generalization</p> <p>Lesson 5: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>
<p>Anchor Text(s)/Additional Instructional Resources:</p> <p>Anchor Text: enVision Math: Pearson Realize © 2015 Online subscription: Pearson Realize Manipulatives: Dot paper, tangrams, plane shapes</p>		

Alaska Standards Addressed & Assessed:

Geometry: Reason with shapes and their attributes.

3.G.1. Categorize shapes by different attribute classifications and recognize that shared attributes can define a larger category. Generalize to create examples or non-examples.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

3.MD.7. Recognize area as an attribute of plane figures and understand concepts of area measurement.

a. A square with side length 1 unit is said to have “one square unit” and can be used to measure area.

b. Demonstrate that a plane figure which can be covered without gaps or overlaps by n (e.g., 6) unit squares is said to have an area of n (e.g., 6) square units.

UNIT:

Topic 12: Time

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 7 (Topic Test)
- Total Instructional Time: 7 Days

Anchor Standard(s):

Measurement and Data:

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Unit Essential Questions:

How can lengths of time be measured and found?

Student Learning Goals:

Students will be able to:

- Tell and write time to the half and quarter hour
- Tell and write time to the minute
- Find elapsed time
- Work backward to solve problems

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Time Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Time	4	3	2	1
I can tell and write time to the half hour.				
I can tell and write time to the quarter hour.				
I can tell time to the minute.				
I can find elapsed time.				
I can work backward to solve problems.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: Time can be expressed using different units that are related to each other (seconds, minutes, hours). A.M. and P.M. are used to designate certain time periods.</p> <p>Lesson 2: The minute hand takes 5 minutes to move from one number to the next on a typical clock face. The minute hand takes 1 minute to move from one mark to the next physical mark on a typical clock face.</p> <p>Lesson 3: Elapsed time can be found by finding the total amount of time that passes between a starting time and an ending time.</p> <p>Lesson 4: Some problems with the initial data point unknown can be solved by starting with the end result, reversing the steps and processes, and working backward to find the initial data point.</p>	<p>Lesson 1: Hour, half hour, quarter hour, minute, seconds, A.M., P.M.</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: Elapsed time</p> <p>Lesson 4: Generalization</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>
<p>Anchor Text(s)/Additional Instructional Resources:</p> <p>Anchor Text: enVision Math: Pearson Realize © 2015 Online subscription: Pearson Realize Manipulatives: Clock faces</p>		
<p>Alaska Standards Addressed & Assessed:</p> <p>Measurement and Data: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</p> <p>3.MD.1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes or hours (e.g., by representing the problem on a number line diagram or clock).</p>		

UNIT:

Topic 13: Perimeter

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 8 (Topic Test)
- Total Instructional Time: 8 Days

Anchor Standard(s):

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Unit Essential Questions:

How can perimeter be measured and found?

Student Learning Goals:

Students will be able to:

- Use standard units to find perimeter
- Find perimeter of common shapes
- Use the given sides of a polygon to find the unknown side lengths
- Find shapes with the same perimeter
- Break a problem into smaller, more manageable pieces and find a pattern to fit

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

Perimeter Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Perimeter	4	3	2	1
I can explain and show how to find perimeter.				
I can use standard units to find perimeter.				
I can find perimeter of common shapes.				
I can use the given sides of a polygon to find the unknown side lengths.				
I can find shapes with the same perimeter.				
I can break a problem into smaller pieces and find a patten to fit.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: The distance around a figure is its perimeter. To find the perimeter of a polygon, add the lengths of the sides.</p> <p>Lesson 2: To find the perimeter of a polygon, add the lengths of the sides.</p> <p>Lesson 3: To find the perimeter of a polygon, add the lengths of the sides.</p> <p>Lesson 4: Shapes can be made with a given perimeter. Different shapes can have the same perimeter.</p> <p>Lesson 5: Some problems can be solved by breaking them apart or changing the problem into simpler problems and using these solutions to solve the original problem. Recording information in a table can help students understand and solve some problems.</p>	<p>Lesson 1: Perimeter</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>
<p>Anchor Text(s)/Additional Instructional Resources: Anchor Text: enVision Math: Pearson Realize © 2015 Online subscription: Pearson Realize Manipulatives: Centimeter paper, toothpicks, popsicle sticks</p>		
<p>Alaska Standards Addressed & Assessed:</p> <p>Geometric measurement: understand concepts of area and relate area to multiplication and to addition. 3.MD.7. Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit is said to have “one square unit” and can be used to measure area.</p> <p>Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. 3.MD.10. Solve real world and mathematical problems involving perimeters of polygons, including: • finding the perimeter given the side lengths • finding an unknown side length</p>		

UNIT:

Topic 14: Area

Grade Level: 3rd**Critical Dates/Timeline:**

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 15 (Topic Test)
- Total Instructional Time: 15 Days

Anchor Standard(s):

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Unit Essential Questions:

What does area mean?

What are different ways to find area?

Student Learning Goals:

Students will be able to:

- Measure the area of a shape by counting the number of square units that cover a region
- Use square units to make figures with given areas
- Use standard units of area and counting to measure area of a shape
- Find the area of rectangles by counting square units or by using a formula
- Use the area of rectangles to model the Distributive Property
- Solve a problem by working a simpler problem
- Solve complex problems asking for the area of irregular shapes
- Compare different rectangles with the same perimeter to discover the change in area
- Compare different rectangles with the same area to discover the change in perimeter
- Use equal-area parts of figures to model unit fractions
- Select appropriate units and tools for measuring the area of given items

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

3rd Grade: Math Unit 14
Area
Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
	4	3	2	1
I can explain and show how to find area of a shape by counting the number of square units that cover a region.				
I can use square units to make figures with a given area.				
I can find the area of a rectangle by counting square units.				
I can find the area of a rectangle by using a formula.				
I can use the area of rectangles to model the Distributive Property.				
I can solve a problem by working out a simpler problem.				
I can solve complex problems asking for the area of irregular shapes.				
I can compare different rectangles with the same perimeter to discover the change in area.				
I can compare different rectangles with the same area to discover the change in perimeter.				
I can use equal-area parts of figures to model unit fractions.				
I can choose the appropriate units and tools for measuring the area of given items.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: The amount of space inside a shape is its area, and area can be estimated or found using square units.</p> <p>Lesson 2: Square units can be used to create shapes with given areas.</p> <p>Lesson 3: Standard measurement units are used for consistency in finding and communicating measurements.</p> <p>Lesson 4: The amount of space inside a shape is its area, and area can be estimated or found using square units. Formulas exist for finding the area of some polygons.</p> <p>Lesson 5: The areas of rectangles can be used to model the Distributive Property.</p> <p>Lesson 6: Some problems can be solved by breaking them apart or changing the problem into simpler problems and using these solutions to solve the original problem.</p> <p>Lesson 7: The area of some irregular shapes can be found by breaking apart the original shape into other shapes for which the areas can be found. Area can be estimated in square units.</p> <p>Lesson 8: There are relationships between perimeter and area of a polygon.</p> <p>Lesson 9: There are relationships between perimeter and area of a polygon.</p>	<p>Lesson 1: Area</p> <p>Lesson 2: Square unit</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: No new vocabulary introduced</p> <p>Lesson 6: No new vocabulary introduced</p> <p>Lesson 7: No new vocabulary introduced</p> <p>Lesson 8: No new vocabulary introduced</p> <p>Lesson 9: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

Lesson 10:
The area of a figure is the number of square units that cover the figure. Equal-area parts of a figure can be used to model unit fractions.

Lesson 11:
In a given measurement situation, the type of measuring tool and the measurement units it contains determine the appropriateness of the tool.

Lesson 10:
No new vocabulary introduced

Lesson 11:
No new vocabulary introduced

Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015
Online subscription: Pearson Realize
Manipulatives: Centimeter paper, inch paper

Alaska Standards Addressed & Assessed:

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

3.MD.7. Recognize area as an attribute of plane figures and understand concepts of area measurement.

- a. A square with side length 1 unit is said to have “one square unit” and can be used to measure area.
- b. Demonstrate that a plane figure which can be covered without gaps or overlaps by n (e.g., 6) unit squares is said to have an area of n (e.g., 6) square units.

3.MD.9. Relate area to the operations of multiplication and addition.

- a. Find the area of a rectangle with whole number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. For example, after tiling rectangles, develop a rule for finding the area of any rectangle.
- b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole number products as rectangular areas in mathematical reasoning.
- c. Use area models (rectangular arrays) to represent the distributive property in mathematical reasoning. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$.
- d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. For example, the area of a 7 by 8 rectangle can be determined by decomposing it into a 7 by 3 rectangle and a 7 by 5 rectangle.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

3.MD.10. Solve real world and mathematical problems involving perimeters of polygons, including:

- finding the perimeter given the side lengths,
- finding an unknown side length,
- exhibiting rectangles with the same perimeter and different areas,
- exhibiting rectangles with the same area and different perimeters.

UNIT:

Topic 14: Area

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 15 (Topic Test)
- Total Instructional Time: 15 Days

Anchor Standard(s):

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Reason with shapes and their attributes.

Unit Essential Questions:

What does area mean?

What are different ways to find area?

Student Learning Goals:

Students will be able to:

- Measure the area of a shape by counting the number of square units that cover a region
- Use square units to make figures with given areas
- Use standard units of area and counting to measure area of a shape
- Find the area of rectangles by counting square units or by using a formula
- Use the area of rectangles to model the Distributive Property
- Solve a problem by working a simpler problem
- Solve complex problems asking for the area of irregular shapes
- Compare different rectangles with the same perimeter to discover the change in area
- Compare different rectangles with the same area to discover the change in perimeter
- Use equal-area parts of figures to model unit fractions
- Select appropriate units and tools for measuring the area of given items

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

3rd Grade: Math Unit 14
Area
Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
	4	3	2	1
I can explain and show how to find area of a shape by counting the number of square units that cover a region.				
I can use square units to make figures with a given area.				
I can find the area of a rectangle by counting square units.				
I can find the area of a rectangle by using a formula.				
I can use the area of rectangles to model the Distributive Property.				
I can solve a problem by working out a simpler problem.				
I can solve complex problems asking for the area of irregular shapes.				
I can compare different rectangles with the same perimeter to discover the change in area.				
I can compare different rectangles with the same area to discover the change in perimeter.				
I can use equal-area parts of figures to model unit fractions.				
I can choose the appropriate units and tools for measuring the area of given items.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: The amount of space inside a shape is its area, and area can be estimated or found using square units.</p> <p>Lesson 2: Square units can be used to create shapes with given areas.</p> <p>Lesson 3: Standard measurement units are used for consistency in finding and communicating measurements.</p> <p>Lesson 4: The amount of space inside a shape is its area, and area can be estimated or found using square units. Formulas exist for finding the area of some polygons.</p> <p>Lesson 5: The areas of rectangles can be used to model the Distributive Property.</p> <p>Lesson 6: Some problems can be solved by breaking them apart or changing the problem into simpler problems and using these solutions to solve the original problem.</p> <p>Lesson 7: The area of some irregular shapes can be found by breaking apart the original shape into other shapes for which the areas can be found. Area can be estimated in square units.</p> <p>Lesson 8: There are relationships between perimeter and area of a polygon.</p> <p>Lesson 9: There are relationships between perimeter and area of a polygon.</p>	<p>Lesson 1: Area</p> <p>Lesson 2: Square unit</p> <p>Lesson 3: No new vocabulary introduced</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: No new vocabulary introduced</p> <p>Lesson 6: No new vocabulary introduced</p> <p>Lesson 7: No new vocabulary introduced</p> <p>Lesson 8: No new vocabulary introduced</p> <p>Lesson 9: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>

Lesson 10:
The area of a figure is the number of square units that cover the figure. Equal-area parts of a figure can be used to model unit fractions.

Lesson 11:
In a given measurement situation, the type of measuring tool and the measurement units it contains determine the appropriateness of the tool.

Lesson 10:
No new vocabulary introduced

Lesson 11:
No new vocabulary introduced

Anchor Text(s)/Additional Instructional Resources:

Anchor Text: enVision Math: Pearson Realize © 2015
Online subscription: Pearson Realize
Manipulatives: Centimeter paper, inch paper

Alaska Standards Addressed & Assessed:

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

3.MD.7. Recognize area as an attribute of plane figures and understand concepts of area measurement.

- a. A square with side length 1 unit is said to have “one square unit” and can be used to measure area.
- b. Demonstrate that a plane figure which can be covered without gaps or overlaps by n (e.g., 6) unit squares is said to have an area of n (e.g., 6) square units.

3.MD.9. Relate area to the operations of multiplication and addition.

- a. Find the area of a rectangle with whole number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. For example, after tiling rectangles, develop a rule for finding the area of any rectangle.
- b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole number products as rectangular areas in mathematical reasoning.
- c. Use area models (rectangular arrays) to represent the distributive property in mathematical reasoning. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$.
- d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. For example, the area of a 7 by 8 rectangle can be determined by decomposing it into a 7 by 3 rectangle and a 7 by 5 rectangle.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

3.MD.10. Solve real world and mathematical problems involving perimeters of polygons, including:

- finding the perimeter given the side lengths,
- finding an unknown side length,
- exhibiting rectangles with the same perimeter and different areas,
- exhibiting rectangles with the same area and different perimeters.

Reason with shapes and their attributes.

3.G.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of the shape.

UNIT:
Topic 15: Liquid Volume and Mass

Grade Level: 3rd

Critical Dates/Timeline:

- Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)
- Topic Common Assessment: Day 8 (Topic Test)
- Total Instructional Time: 8 Days

Anchor Standard(s):

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Unit Essential Questions:

What are the metric units for measuring volume and mass?

Student Learning Goals:

Students will be able to:

- Choose an appropriate unit and tool, estimate, and measure in millimeters and liters. Identify objects that hold about a liter and about a milliliter
- Use a marked 1-liter container to measure capacity of other containers in millimeters and liters
- Choose an appropriate unit and tool, estimate and measure in grams and kilograms. Identify objects with mass of about one gram and about one kilogram
- Use a pan balance with metric weights to measure the mass of objects in grams and kilograms
- Draw a picture to solve a problem involving units of capacity and mass

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

**3rd Grade: Math Unit 15
Liquid Volume and Mass
Student Self-Assessment**

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Liquid Volume and Mass	4	3	2	1
I can choose and appropriate unit and tool, estimate, and measure in millimeters and liters.				
I can identify objects that hold about a liter and about a milliliter.				
I can use a marked 1-liter container to measure capacity of other containers in millimeters and liters.				
I can identify objects with mass of about one gram and about one kilogram.				
I can use a pan balance with metric weights to measure the mass of objects in grams and kilograms.				
I can draw a picture to solve a problem involving units of capacity and mass.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: Capacity is a measure of the amount of liquid a container can hold.</p> <p>Lesson 2: Capacity is a measure of the amount of liquid a container can hold.</p> <p>Lesson 3: Mass is a measure of the quantity of matter in an object. Weight and mass are different.</p> <p>Lesson 4: Mass is a measure of the quantity of matter in an object. Weight and mass are different.</p> <p>Lesson 5: Information in a problem can often be shown using a picture or diagram and used to understand and solve the problem. Some problems can be solved by writing and completing a number sentence or equation.</p>	<p>Lesson 1: Capacity, milliliter (mL), liter (L)</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: Mass, gram (g), kilogram (kg)</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>
<p>Anchor Text(s)/Additional Instructional Resources:</p> <p>Anchor Text: enVision Math: Pearson Realize © 2015 Online subscription: Pearson Realize Manipulatives: Liter containers, rice, sand, water, marked 1 liter containers, assorted containers, pan balance, stapler, dollar bill, metric weights, assorted objects</p>		
<p>Alaska Standards Addressed & Assessed:</p> <p>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. 3.MD.2. Estimate and measure liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as cm³ and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve and create one-step word problems involving masses or volumes that are given in the same units (e.g., by using drawings, such as a beaker with a measurement scale, to represent the problem). (Excludes multiplicative comparison problems [problems involving notions of “times as much.”]).</p>		

UNIT: Topic 16: Data Grade Level: 3rd	Critical Dates/Timeline: <ul style="list-style-type: none">• Diagnostic Performance Task(s): Day 1 (Alternative Topic Assessment)• Topic Common Assessment: Day 9 (Topic Test)• Total Instructional Time: 9 Days
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Anchor Standard(s):
Represent and interpret data.

Unit Essential Questions:
How can data be represented, interpreted, and analyzed?

Student Learning Goals:
Students will be able to:

- Use a line plot to organize the results of an experiment
- Collect data by measuring lengths to the nearest fourth of an inch and make line plots to organize the data and draw conclusions
- Read and interpret data from a pictograph
- Read and interpret data from a bar graph
- Make a pictograph to represent the data in a table or tally chart
- Make a bar graph to represent the data in a table or tally chart
- Solve problems by using tables and graphs to draw conclusions

Scale/Rubric for Learning Goals:

The 1, 2, 3, 4, Learning Scale will be used daily throughout the lesson for the student and teacher to gauge student comprehension and confidence with the skills and concepts (students will show with fingers on their hand).

Students will complete the following Self-Assessment at the beginning, middle and end of the unit.

3rd Grade: Math Unit 16

Data

Student Self-Assessment

Rating Scale

4= I'm an expert. I can do it without mistakes and I can help others.

3= I understand it. I can do it by myself with few mistakes.

2= Sometimes I need help. I am starting to understand.

1= I can't do it by myself. I don't understand yet.

Math Goal	My Rating			
Data	4	3	2	1
I can use a line plot to organize the results of an experiment.				
I can collect data by measuring lengths to the nearest fourth of an inch and make line plots to organize the data and draw conclusions.				
I can read and interpret data from a pictograph				
I can read and interpret data from a bar graph.				
I can make a pictograph to represent data from a table or tally chart.				
I can make a bar graph to represent the data in a table or tally chart.				
I can solve problems by using tables and graphs to draw conclusions.				
Date:				

Essential Skills and Concepts:	Academic Vocabulary:	Interventions/Extensions:
<p>Lesson 1: Line plots allow data to be compared more easily than in a list or a table.</p> <p>Lesson 2: Line plots can be used to organize and represent data generated by measuring lengths.</p> <p>Lesson 3: Each type of graph is most appropriate for certain kinds of data. Pictographs and bar graphs make it easy to compare data.</p> <p>Lesson 4: Each type of graph is most appropriate for certain kinds of data. The key for a pictograph determines the number of pictures needed to represent each number in a set of data.</p> <p>Lesson 5: Each type of graph is most appropriate for certain kinds of data. In a bar graph, the scale determines how long the bar needs to be to represent each number in a set of data.</p> <p>Lesson 6: Some problems can be solved by making, reading, and analyzing a graph.</p>	<p>Lesson 1: Line plot</p> <p>Lesson 2: No new vocabulary introduced</p> <p>Lesson 3: Pictograph, bar graph, key, scale</p> <p>Lesson 4: No new vocabulary introduced</p> <p>Lesson 5: No new vocabulary introduced</p> <p>Lesson 6: No new vocabulary introduced</p>	<p>Intervention: - Small group reteach - RTI Intervention System</p> <p>Enrichment: - Pearson Realize Game Center - Show/explain the concept/skill on iPad - On-level & advanced center activities</p>
<p>Anchor Text(s)/Additional Instructional Resources:</p> <p>Anchor Text: enVision Math: Pearson Realize © 2015 Online subscription: Pearson Realize Manipulatives: Rulers, graph paper, sandwich survey</p>		

Alaska Standards Addressed & Assessed:

Represent and interpret data.

3.MD.4. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.

3.MD.5. Measure and record lengths using rulers marked with halves and fourths of an inch. Make a line plot with the data, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

3.MD.6. Explain the classification of data from real-world problems shown in graphical representations. Use the terms minimum and maximum. (L)