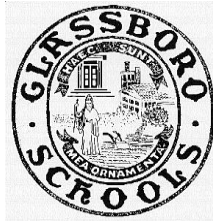


**GLASSBORO PUBLIC SCHOOLS**  
**Glassboro, New Jersey**

**Grade 4: Mathematics Curriculum**

**Date: September 2011**



## **GLASSBORO PUBLIC SCHOOLS**

### **Glassboro, New Jersey**

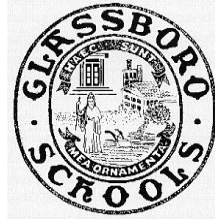
### **Mission and Vision Statement**

#### Mission Statement

The mission of the Glassboro School District, in partnership with its families and community, is to ensure that all students achieve the New Jersey Core Curriculum Content Standards (NJ CCCS) at all grade levels; to prepare each of our students with the knowledge, skills, attitudes and values necessary to succeed as life-long learners; and to be competent, responsible, well-rounded individuals ready to attain productive and self-fulfilling roles in an ever changing global society.

#### Vision Statement

We see a partnership of the Board of Education, staff, all students, parents and community that provides optimum opportunities for access, learning and high achievement. This partnership is responsible for the execution of our Mission Statement.



**GLASSBORO PUBLIC SCHOOLS**  
**Glassboro, New Jersey**  
**Philosophy Statement**

## UBD UNIT 1 - Grade 4

<b>Title:</b> Everyday Mathematics		<b>Subject/Course:</b> Math	
<b>Topic:</b> Naming and Constructing Geometric Figures		<b>Grade:</b> 4	
		<b>Designer:</b> Renee Hart	
<b>Stage 1- Desired Results</b>			
<b>Established Goals:</b> <b>Standards of Mathematical Practices ( SMP) 1-8</b> <b>4.NBT.2.</b> Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$ , $=$ , and $<$ symbols to record the results of comparisons. <b>4.G.1.</b> Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. <b>4.G.2.</b> Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.			
<b>Understandings:</b> Students will understand that... <ol style="list-style-type: none"> <li>1. Mathematics is more than numbers and is strongly linked to language and art.</li> <li>2. Geometry is the fundamental structure to matter created in nature and created by man. Examples include trees, body segments, architecture etc.</li> <li>3. Plane figures can be described, classified, and analyzed by their attributes.</li> <li>4. Plane figures can be transformed in an infinite number of ways.</li> </ol>		<b>Essential Questions:</b> <ol style="list-style-type: none"> <li>1. How are 1, 2, and 3 dimensional shapes related?</li> <li>2. How are geometric properties used to construct geometric figures?</li> <li>3. What situations can be analyzed using transformations?</li> </ol>	
<b>Students will know and be able to...</b> <ol style="list-style-type: none"> <li>1. Demonstrate automaticity with all addition and subtraction facts through <math>10 + 10</math></li> <li>2. Identify, draw, and describe points, intersecting and parallel line segments and lines, rays, and right angles.</li> <li>3. Describe and classify plane figures, including polygons and circles using appropriate geometric terms, including congruent.</li> </ol>			
<b>Stage 2- Assessment Evidence</b>			

<p><b>Performance Tasks:</b></p> <ol style="list-style-type: none"> <li>1. Unit 1 Open Response p. 158 <u>Properties of Polygons:</u> Ben's teacher Ms. Lopez asked him to sort the polygons below into 2 groups. Ms. Lopez and Ben must sort the polygons according to their properties.</li> <li>2. Construct(Draw) your home or your body without line segments, polygons. Then and construct your home or your body with ruler and only line segments and polygons.</li> </ol>	<p><b>Other Evidence:</b></p> <ol style="list-style-type: none"> <li>1. Unit 1 Self-Assessment pg. 154</li> <li>2. Unit 1 Written Assessment p. 155-157</li> <li>3. Every day Mathematics Games</li> <li>4. Exit Slips</li> <li>5. Math Logs</li> <li>6. Red Star activities</li> <li>7. Differentiation Options</li> <li>8. Technology: Assessment Management System Unit 1 <i>See iTLG.</i></li> </ol>
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### Stage 3- Learning Plan

**UNIT LENGTH:** 12 -14 days

#### Unit 1: Naming and Constructing Geometric figures

- 1.1 Students Explore the *Student Reference Book*. Use Fact Triangles to develop automaticity with additions and subtraction facts, students practice and maintain skills through Math Boxes. Students take home Family Letter introducing Everyday Mathematics and Unit 1. Book T. p. 18(Differentiation Options) -22,
- 1.2 Students identify and draw line, segments, lines, and rays. Describe characteristics of line segments, line, and rays. Use letter and symbol notation to name line segments, lines, and rays. Students play *Addition Top-It* to practice addition facts. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 23(Differentiation Options) -28.
- 1.3 Students construct and name angles: construct triangles and quadrangles: and classify quadrangles, use a Math Log and Exit slip for assessment. Students add and subtract whole numbers. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 29(Differentiation Options) -34.
- 1.4 Students review the meaning of parallel, line segments, and rays. They compare various parallelograms and quadrangles. Students play *Subtraction Top- It* to practice subtraction facts. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 35(Differentiation Options) -40
- 1.5 Students construct convex and concave polygons. They identify the characteristics that various polygons have in common and develop definitions of the polygon and regular polygons. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 41(Differentiation Options) -46.
- 1.6 Students draw circles with a compass and construct a square inscribed in a circle by folding paper. Students play *Polygon Pair-Up* to practice identifying properties of polygons. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 47(Differentiation Options) -51.
- 1.7 Students explore construction that involves more than one circle. Students

practice and maintain skills through Math Boxes and Study Link activities. T. p. 52(Differentiation Options) -56.

1.8 Students continue their work with a compass and straightedge. They copy line segments, construct regular hexagons inscribed in circles, and divide a hexagon into six equilateral triangles. Students match descriptions of geometric figures with their names. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 57(Differentiation Options) -61.

1.9 Students' are assessed on progress of mathematical content through the end of Unit 1 with written assessment. Game day and Review Progress Check ( 2 days) T. p. 62- 65.

## UBD UNIT 2 - Grade 4

<b>Title:</b> Everyday Mathematics	<b>Subject/Course:</b> Math
<b>Topic:</b> Using Numbers and Organizing Data	<b>Grade:</b> 4
<b>Designer:</b> Renee Hart	
<b>Stage 1- Desired Results</b>	
<p><b><u>Established Goals:</u></b></p> <p><b>Standards of Mathematical Practices ( SMP) 1-8</b></p> <p><b>4.NBT.1.</b> Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that <math>700 \div 70 = 10</math> by applying concepts of place value and division.</i></p> <p><b>4.NBT.2.</b> Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p><b>4.NBT.4.</b> Fluently add and subtract multi-digit whole numbers</p> <p><b>4.OA.1.</b> Interpret a multiplication equation as a comparison, e.g., interpret <math>35 = 5 \times 7</math> as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.</p> <p><b>4.OA.3.</b> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p><b>4.OA.5.</b> Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i></p> <p><b>4.MD.1.</b> Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i></p> <p><b>4.MD.2.</b> Use the four operations to solve word problems involving Distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p>	

**4.G.1.** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.  
**4.G.2.** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

**Understandings:**

Students will understand that...

5. Our mathematical system is based on base-ten- place value system in which we use the same 10 digits to represent infinite numerical possibilities.
6. Addition and Subtraction are essential skills that we use every day when dealing with money, measurement, or data collection.
7. Plane figures can be described, classified, and analyzed by their attributes.
8. Tables, graphs, and symbols are alternative ways of representing data, and relationships can be translated from one to another.

**Essential Questions:**

1. How can counting, measuring, or labeling help us make sense of the world around us?
2. How can we decide which algorithm to use in a particular situation?
3. What makes an estimate reasonable?
4. How can the collection, organization, interpretation, and display of data be used to answer questions?
5. How are geometric properties used to construct geometric figures?
6. What situations can be analyzed using transformations?

**Students will know and be able to...**

1. Read and write whole numbers up to 1,000,000,000; identify places in such numbers and the values of the digits in those places.
2. Use numerical expressions to give equivalent names for whole numbers.
3. Solve problems involving the addition and subtraction of whole numbers.
4. Make reasonable estimates for whole-number addition and subtraction problems.
5. Use a tally chart: create a bar graph.
6. Find the maximum, minimum, range, median, mode of a data set.
7. Measure length to the nearest  $\frac{1}{2}$  centimeters.
8. Describe and classify plane figures.

**Stage 2- Assessment Evidence**



**Performance Tasks:**

3. Unit 2 Open Response p. 163  
Jelly Bean Data: Mr. Evans gave bags of jelly beans to students in his class. Each student counted the jelly beans in the bag and wrote the numbers on the board. Then the students found the landmarks for the class data. (*Minimum 9, Maximum 18, Mode 12, Median 13*). Suppose there were 11 students in Mr. Evans's class. List the number of jelly beans each student could have reported to get the landmarks listed above. Explain.

**Other Evidence:**

9. Unit 2 Self-Assessment pg. 159
10. Unit 2 Written Assessment p. 160-162
11. Every day Mathematics Games
12. Exit Slips
13. Math Logs
14. Red Star activities
15. Differentiation Options
16. Technology: Assessment Management Systems Unit 2  
*See the iTLG*

**Stage 3- Learning Plan****UNIT LENGTH:** 12-14 daysUnit 2: Using Numbers and Organizing Data

- 2.1 Students start the yearlong World Tour Project by traveling from their hometown to Washington D.C. They identify uses of numbers in the tourist information on Washington D.C., provided in the *Student Reference Book*., Use numbers written in number-word notation, compare uses of estimates and exact counts, locate points on a letter- number coordinate map. Extend numerical patterns. Students play *Polygon Pair-Up* to practice identifying properties of polygons. Student practice and maintain skills through Math Boxes and Study Links activities. T. p. 82 ( Differentiation Options) -88.
- 2.2 Students use name collection boxes to practice representing whole numbers in different way. Give equivalent mathematical expressions for whole numbers. Use conventional notation to write expression using the four basic arithmetic operation. Insert grouping symbols to make number sentences true. Students play *Name That Number* to practice representing numbers in different ways. Student practice and maintain skills through Math Boxes and Study Links activities T. p.89( Differentiation Options) -83.
- 2.3 Students review basic place-value concepts for whole numbers. They express whole numbers and sums of ones, tens, hundreds, and so on, and observe the relationship between such sums and the way numbers are read. Students identify properties of polygons. Students practice and maintain skills through Math Boxes and Study Links activities T. p. 94( Differentiation Options) -99.
- 2.4 Students enter a number in their calculators and then change one or more digits in the display by adding or subtracting one or more numbers. Students *play Fishing for Digits* to practice identifying digits in whole numbers and expressing their value. Students practice and maintain skills through Math Boxes and Study Links activities. T. p. 100 ( Differentiation Options) -105.

- 2.5 Students guess, estimate, and then count the number of objects in a container. They tally the class results in a chart and find the minimum, maximum, range, and mode for the data. Use and describe a strategy for estimating volume; describe the difference between an estimate and a guess. Students play *Addition Top- It* to practice addition facts. Students practice and maintain skills through Math Boxes and Study Links activities. T. p. 106( Differentiation Options) - 111.
- 2.6 Students construct a line plot to organize and summarize data about the sizes of their families. They find the minimum, maximum, range, mode, and median for the data. Create a line plot. Students play *Subtraction Top- It* to practice subtraction facts. Students practice and maintain skills through Math Boxes and Study Links activities. T. p. 112 ( Differentiation Options) - 118.
- 2.7 Students make ballpark estimates for addition problems. They discuss the partial sums method for addition and use it to solve problems. Students discuss the column-addition method and use it to solve problems. Students play *High-Number Toss* to practice comparing numbers. ( 2 days).T. p. 119- 125.
- 2.8 Students measure their head sizes to nearest half-centimeter. They find the median head size and make a bar graph of the data. Create a bar graph. Determine the minimum, range, mode, and median of a data set. Ask and answer questions and draw conclusions based on data landmarks and a bar graph. Students construct a kite a kite with a compass and straightedge. Students practice and maintain skills through Math Boxes and Study Links activities T. p. 126 ( Differentiation Options) -131.
- 2.9 Students use the trade- first and partial-differences methods for subtraction. Identify place in whole numbers and the values of the digits in those places. Make ball park estimates for multi-digit subtraction problems Students practice and maintain skills through Math Boxes and Study Links activities ( 2 days) T. p. 132( Differentiation Options) -136.
- 2.10 Progress Check 2 is a cumulative assessment of concepts and skills that are taught in Unit 2 in previous units T. p. 138- 141.

## UBD UNIT 3 - Grade 4

**Title:** Everyday Mathematics

**Subject/Course:** Math

**Topic:** Multiplication and  
Division; Number Sentences and  
Algebra

**Grade:** 4

**Designer:**  
Renee Hart

### Stage 1- Desired Results

#### Established Goals:

#### **Standards of Mathematical Practices ( SMP) 1-8**

**4.NBT.2.** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

**4.NBT.6.** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

**4.OA.1.** Interpret a multiplication equation as a comparison, e.g., interpret  $35 = 5 \times 7$  as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

**4.OA.4.** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

**4.OA.5.** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

**4.MD.1.** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*

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

**4.G.1.** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

**4.G.2.** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

**Understandings:**

Students will understand that...

9. Multiplication and Division are essential skills that we use every day when dealing with money, measurement, or data collection.
10. Multiplication is adding quickly. and, division is subtracting rapidly.
11. Our world is filled with patterns and rules. Algebra is a life- long skill that assists us in making sense of those patterns, discovering the unknown, and creating number stories.
12. Plane figures can be described, classified, and analyzed by their attributes.

**Essential Questions:**

7. Why is it important to learn multiplication. and division basic facts?
8. How can we decide which algorithm to use in a particular situation?
9. What are some ways to represent, describe, and analyze patterns?
10. What makes an estimate reasonable?
11. How are geometric properties used to construct geometric figures?

**Students will know and be able to...**

9. Find multiples and factors.
10. Give equivalent names for whole numbers.
11. Solve addition and subtraction number stories.
12. Know multiplication and division facts.
13. Use a map scale.
14. Interpret a bar graph.
15. Estimate and measure the length of line segments.
16. Solve “What My Rule” problems.
17. Use conventional notation to write expressions and number sentences.
18. Determine whether a number a number sentence is true or false.
19. Solve open sentences.
20. Use parentheses.

**Stage 2- Assessment Evidence**

<p><b>Performance Tasks:</b></p> <p>4. Unit 3 Open Response p. 168  <u>Name That Number</u> : Kato was playing a game of <i>Name That Number</i>. He had the following five number cards and target number. Cards ( 3,2,8,6,5) and target number 12. His teacher Ms. Ayers, asked everyone to record their thinking. Here is what Kato wrote:</p> $5 + (6 + 8) \div 2 - 3 = 12$ $6 * 2 + (8 - 5) - 3 = 12$ $3 * 2 + (8 + 5) - 6 = 12$ <p>Ms. Ayers saw that Kato had made a mistake in writing two of his number sentences. Find Kato's mistake and explain how he made the mistake and how he can correct it.</p>	<p><b>Other Evidence:</b></p> <p>17. Unit 3 Self-Assessment pg. 164  18. Unit 3 Written Assessment p. 165-167  19. Every day Mathematics Games  20. Exit Slips  21. Math Logs  22. Red Star activities  23. Differentiation Options  24. Technology: Assessment Management System Unit 3. <i>See iTLG.</i></p>
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### Stage 3- Learning Plan

**UNIT LENGTH:** 14- 16 days

#### Unit 3: Multiplication and Division; Number Sentences and Algebra

- 3.1 Students discuss problems in which one quantity depends on another. They illustrate this kind of relationship between pairs of numbers with a function machine and a “What My Rule?” table. They solve “What My Rule?” Design polygon letters. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 158( Differentiation Options) - 161.
- 3.2 Students cut out Multiplication/ Division Fact Triangles. They discuss the Multiplication/Division Facts Table, symbols, and vocabulary for multiplication; and they learn multiplication shortcuts and ways to solve unknown facts. They use Fact Triangles to practice multiplication facts. Students play *Name That Number* to practice representing numbers in different ways. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 163 (Differentiation Options) - 168.
- 3.3 Students look for patterns in multiplication facts. A 50-facts test routine for assessing students' progress in memorizing the multiplication facts is introduced and practiced. Rename a fraction as an equivalent fraction and as a percent. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 169( Differentiation Options) - 174.
- 3.4 Students take their first 50 –facts test of record. They graph individual and class

- scores. Rename a fraction as an equivalent fraction and as a percent .Use data to create a line graph. Find the median and mean of a data set.  
Students practice and maintain skills through Math Boxes and Study Link activities T. p. 175( Differentiation Options) - 179.
3. 5 Students explore the relationships between multiplication and division. They use the Multiplication /Division Facts Table to solve division facts, and they use Multiplication/Division Fact Triangles to generate fact families and to practice division facts. Students play *Beat the Calculator* to practice Students practice and maintain skills through Math Boxes and Study Link .activities .  
T. p. 180( Differentiation Options) - 185.
3. 6 Students travel to Cairo, Egypt, on the World Tour, which was introduced in Lesson 2-1. Read and write large numbers, Calculate relative time across time zones. Judge the reasonableness of counts; describe the difference between a count and an estimate. Use a table of climate data and a time zones map. Students play *Multiplication Top- It* to practice multiplication facts. Students practice and maintain skills through Math Boxes and Study Link activities  
T. p.186 ( Differentiation Options) - 191.
- 3.7 Students measure the shortest distances between international location on a globe. Then students use a map scale to convert these measurement to actual air distances. Solve multiplication problems. Use a map scale. Measure to the nearest  $\frac{1}{2}$  inch. Students play *Polygon Pair-Up* to practice naming properties of polygons. T. p. 192 ( Differentiation Options) - 197.
- 3.8 Students learn and apply a four- step approach that can be used to solve number stories. They focus on additions and subtractions numbers stories. Students play *High-Number Toss* to practice place value skills and compare numbers. Students practice and maintain skills through Math Boxes and Study Link activities.  
T. p. 198 ( Differentiation Options) - 202.
- 3.9 Students review the meanings of number sentences and determine, whenever possible, whether number sentences are true or false. Students take 50-facts test. They use a line graph to record individual and class scores. Then student find the median and calculate the mean of class score. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 203( Differentiation Options) - 207.
- 3.10 Students review the use of parentheses in number sentences that involve more than one operation. They determine whether number sentences that involve more than one operation. They determine whether number sentences containing parentheses are true or false, and they insert parentheses to make true number sentences. Students play Name That Number to practice representing numbers in different ways and inserting parentheses to make true number sentences. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 208( Differentiation Options) -213.
- 3.11 Students learn about open sentences and their solution. They participate in the Broken Calculator activity to reinforce the concept of open sentences and to practice estimation .Student use a map scale to convert measurement to actual distances. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 214 ( Differentiation Options) - 219.
- 3.12 Progress Check 3 is a cumulative assessment of concepts and skills taught in Unit 3 and in previous units. T. p. 220- 223.

## UBD UNIT 4 - Grade 4

<b>Title:</b> Everyday Mathematics	<b>Subject/Course:</b> Math
<b>Topic:</b> Decimals and Their Uses	<b>Grade:</b> 4
<b>Designer:</b> Renee Hart	
<b>Stage 1- Desired Results</b>	
<p><b><u>Established Goals:</u></b></p> <p><b>Standards of Mathematical Practices ( SMP) 1-8</b></p> <p><b>4.NBT.1.</b> Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that <math>700 \div 70 = 10</math> by applying concepts of place value and division.</i></p> <p><b>4.NF.6.</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as <math>62/100</math>; describe a length as 0.62 meters; locate 0.62 on a number line diagram</i></p> <p><b>4.NF.7.</b> Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual model</p> <p><b>4.OA.2.</b> Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.</p> <p><b>4.MD.1.</b> Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i></p> <p><b>4.G.1.</b> Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p><b>4.G.2.</b> Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p>	
<p><b>Understandings:</b> Students will understand that...</p> <p>13. In-between whole numbers are infinite numbers which are represented by fractions or decimals.</p> <p>14. Decimals are used to measure a multitude of things ranging from measurement, money, to</p>	<p><b>Essential Questions:</b></p> <p>12. How can we decide which algorithm to use in a particular situation?</p> <p>13. Why do we need decimals when describing and measuring data?</p> <p>14. How can counting, measuring, or labeling help us make sense of the world around us?</p> <p>15. How are geometric properties used to construct geometric figures?</p>

<p>probability. They help us make sense of what precedes or is between whole numbers.</p> <p>15. Decimals use the same base-ten place value system as whole numbers except we add “<i>ths</i>” to the word. <i>Example hundreds (whole numbers) and hundredths (decimals).</i> The place determines the value.</p> <p>16. Plane figures can be described, classified, and analyzed by their attributes.</p>																					
<p><b>Students will know and be able to...</b></p> <p>21. Read, write, and represent decimals through thousandths: identify digits and express their values in such numbers.</p> <p>22. Find multiples of numbers less than 10: find factors of numbers.</p> <p>23. Convert: easy” fractions to decimals.</p> <p>24. Compare and order decimals through thousandths.</p> <p>25. Add and subtract decimals to hundredths.</p> <p>26. Estimate sums and differences of decimals.</p> <p>27. Measure to the nearest centimeter.</p> <p>28. Describe relationships among metric units of length.</p> <p>29. Solve open number sentences.</p>																					
<p><b>Stage 2- Assessment Evidence</b></p>																					
<p><b>Performance Tasks:</b></p> <p>Unit 4 Open Response p. 173  <u>Forming a Relay Team:</u> Mrs. Wong the gym teacher, wants to form 3 teams for a 200-yard relay race. There will be 4 students on each team. Each student will run 50 yards. Below is a list of the times it took some of the fourth grade students to run 50 yards the last time, to the nearest tenth of a second.</p> <table border="1" data-bbox="321 1612 673 1976"> <thead> <tr> <th>Runner</th> <th>Time( seconds)</th> </tr> </thead> <tbody> <tr><td>Art</td><td>6.3</td></tr> <tr><td>Bruce</td><td>7.0</td></tr> <tr><td>Jamal</td><td>7.4</td></tr> <tr><td>Doug</td><td>7.9</td></tr> <tr><td>Al</td><td>8.3</td></tr> <tr><td>Will</td><td>8.8</td></tr> <tr><td>Linda</td><td>6.2</td></tr> <tr><td>Sue</td><td>7.6</td></tr> <tr><td>Pat</td><td>7.7</td></tr> </tbody> </table>	Runner	Time( seconds)	Art	6.3	Bruce	7.0	Jamal	7.4	Doug	7.9	Al	8.3	Will	8.8	Linda	6.2	Sue	7.6	Pat	7.7	<p><b>Other Evidence:</b></p> <p>25. Unit 4 Self-Assessment pg. 169</p> <p>26. Unit 4 Written Assessment p. 170-172</p> <p>27. Every day Mathematics Games</p> <p>28. Exit Slips</p> <p>29. Math Logs</p> <p>30. Red Star activities</p> <p>31. Differentiation Options</p> <p>32. Technology: Assessment Management System Unit 4. <i>See iTLG</i></p>
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<p>Mary 8.1 Alba 8.4 Joyce 8.5</p> <ol style="list-style-type: none"> <li>1. Help Mrs. Wong create 3 teams that will be fairly and evenly matched. She will use their times from the last race to predict about how fast they will run in the relay race.</li> <li>2. Write the names of four students that you think should be on the same team.</li> <li>3. Estimate about how long you think it will take each team to complete the race.</li> </ol>	
<b>Stage 3- Learning Plan</b>	
<p><b>UNIT LENGTH:</b> 13-15 days</p> <p style="text-align: center;"><u>Unit 4: Decimals and Their Uses</u></p> <ol style="list-style-type: none"> <li>a. Students use number lines to visualize the relationship between successive places in decimals. They review the place- value chart for whole numbers and extend it to decimals. They practice identifying places in decimals and the values of the digits in those places Students play <i>Polygon Pair Up</i> to practice naming properties of polygons .Students practice and maintain skills through Math Boxes and Study Link activities T. p. 238( Differentiation Options) -243.</li> <li>b. Students review basic concepts and notation for decimals for tenths and hundredths. Students play <i>Baseball Multiplication</i> to practice multiplication facts. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 244( Differentiation Options) -249.</li> <li>c. Students compare decimals using base- 10 blocks. They append zeros to decimals in order to compare them. Then they put sets of decimals in sequential order .Students practice and maintain skills through Math Boxes and Study Link activities T. p. 250( Differentiation Options) - 254.</li> <li>d. Students list examples of decimals used in everyday life and sort them into categories. They estimate sums and differences of decimals to answer questions about a bicycle trip. Students play <i>Number Top- It(Decimals)</i> to practice comparing and ordering decimals .Students practice and maintain skills through Math Boxes and Study Link activities T. p. 255-259.</li> <li>e. Students discuss different methods in which to add and subtract decimals, including modeling with base-ten blocks and using algorithms. Students analyze circle graphs. Students practice and maintain skills through Math Boxes and Study Link .activities .T. p. 260-265.</li> <li>f. Students read about deposits and withdrawals in savings accounts and about Interest earned. They use estimation, mental arithmetic, and paper-and-</li> </ol>	

pencil algorithms to find account balances. Students play *Name That Number* to practice representing numbers in different ways. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 266-270.

- 4.7 Students review the relationships among base-ten blocks. They name collections of base-ten blocks as fractions and decimals to thousandths. They read and write, and compare decimals through thousandths. Students resume the World Tour by traveling to a second country Africa. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 271-276.
- 4.8 Students review the relationships among metric units and practice converting measurements. They measure objects or distances to the nearest centimeter and convert their measurements to meters. Students play *Fishing for Digits* to identifying digits in whole numbers and expressing their value. Students practice and maintain skills through Math Boxes and Study Link activities .T. p. 277( Differentiation Options) -282.
- 4.9 Students find personal reference (part of their bodies or other objects) to help estimate lengths of 1 centimeter, 10 centimeters, and 1 meter .Students play *Number Top- It (Decimals)* to practice comparing and ordering decimals. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 283( Differentiation Options) -288.
  - a. Students examine the millimeter marks on their centimeter rulers. They measure line segments in millimeters and centimeters. Then they measure illustrations of various invertebrates in millimeters and convert their measurements to centimeters. Students take a 50-fact test. They use a line graph to record individuals and class scores. They students find the median and calculate the man of class scores. Students practice and maintain skills through Math Boxes and Study Link activities .T. p. 289 (Differentiation Options) -293
- 4.11 Progress Check 4 is a cumulative assessment of concepts and skills taught in Unit 4 and in previous units. T. p. 294-297.

## UBD UNIT 5 - Grade 4

**Title:** Everyday Mathematics

**Subject/Course:** Math

**Topic:** Big Numbers, Estimation,  
and Computation

**Grade:** 4

**Designer:**  
Renee Hart

### Stage 1- Desired Results

#### Established Goals:

#### **Standards of Mathematical Practices ( SMP) 1-8**

**4.NBT.1.** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that  $700 \div 70 = 10$  by applying concepts of place value and division.*

**4.NBT.2.** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

**4.NBT.3.** Use place value understanding to round multi-digit whole numbers to any place.

**4.NBT.5.** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

**4.OA.1.** Interpret a multiplication equation as a comparison, e.g., interpret  $35 = 5 \times 7$  as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

**4.OA.2.** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison

**4.OA.3.** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding

**4.MD.1.** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*

**4.MD.2.** Use the four operations to solve word problems involving Distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that

require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

**4.G.1.** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

**4.G.2.** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

**Understandings:**

Students will understand that...

17. Multiplication is an essential skills that we use every day when dealing with money, measurement, or data collection.
18. Space, distances, and numbers can be infinite. We can represent this expansiveness using a variety of ways including exponents.
19. Our world is filled with patterns and rules. Algebra is a life- long skill that assists us in making sense of those patterns, discovering the unknown, and creating number stories.
20. Knowing the reasonableness of an answer comes from using good number sense and estimation strategies.
21. Plane figures can be described, classified, and analyzed by their attributes.

**Essential Questions:**

16. Why is it important to learn multiplication. and division basic facts?
17. How can we decide which algorithm to use in a particular situation?
18. What are some ways to represent, describe, and analyze patterns?
19. What makes an estimate reasonable?
20. How are geometric properties used to construct geometric figures?

**Students will know and be able to...**

30. Read and write whole numbers through millions; identify digits and their values
31. Write powers of 10 in exponential notation
32. Order whole numbers through millions
33. Solve extended multiplication facts
34. Multiply multidigit whole numbers
35. Make estimates for addition and multiplication problems
36. Add and subtract decimals
37. Measure line segments to the nearest  $\frac{1}{4}$  in. and 0.5 cm.
38. Find and use rules for simple functions.
39. Apply Distributive Property of Multiplication over Addition

**Stage 2- Assessment Evidence****Performance Tasks:**

5. Unit 5 Open Response p. 178  
Walking Away with a Million Dollars: Imagine that you have inherited one million dollars. The bank has only \$700,000 in \$100 bills. The bank gives you the rest of the money in \$20 bills and \$10 bills. Your suitcase will hold as much as 1 carton of paper. Will one million dollars fit in your suitcase?  
Show all your work. Explain what you did to solve the problems.

Information needed to solve the problem:

- You can cover a sheet of paper with six \$100 bills.
- There are 500 sheets in one ream of paper.
- There are 10 reams in one carton.

**Other Evidence:**

33. Unit 5 Self-Assessment pg. 174
34. Unit 5 Written Assessment p. 175-177
35. Every day Mathematics Games
36. Exit Slips
37. Math Logs
38. Red Star activities
39. Differentiation Options
40. Technology: Assessment Management System Unit 5.  
*See iTLG*

**Stage 3- Learning Plan**

**UNIT LENGTH:** 15- 17 daysUnit 5: Big Numbers, Estimation, and Computation

- a. Students use money, arrays, base-10 blocks, repeated addition, and “10-times-as-much” language to solve extended multiplication facts. They develop rules for finding such products. They play *Beat the Calculator* to practice solving extended facts. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 314( Differentiation Options) -319.
- b. Students use their knowledge of extended multiplication facts to play *Multiplication Wrestling*. This game prepares students for the partial products algorithm, which will be introduced in lesson 5-5. Students solve problems based on data about recent U.S. presidents. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 320-324
- c. Students discuss an example of a problem that can be solved by estimation. They use a travel map to determine approximate distances and times between cities. Then they estimate the total distance and the total driving time for a trip. Students practice and maintain skills through Math Boxes and Study Link activities .T. p. 325(Differentiation Options) -329.
- d. Students make magnitude estimates for products and mark their estimates on a magnitude bar that shows tens, hundreds, thousands, and so on. Students play *Multiplication Wrestling*. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 331( Differentiation Options) -336.
- e. Students review the partial-products algorithm. They practice this method for 1-digit multipliers, using mental and paper-and-pencil procedures. Students use personal references for customary units of length to estimate. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 337( Differentiation Options) -342.
- f. Students learn how to extend the partial-product algorithm to 2-digit multipliers. They make rough estimates and then use the partial product method. Students play *Name that Number* to practice representing numbers in different ways. Students practice and maintain skills through Math Boxes and Study Link activities T. p. 343( Differentiation Options) -348.
- g. Students review the lattice method for multiplication with 1-and 2-digit multiplies. They practice using this multiplication algorithm. Students play Multiplication Top-It to practice basic multiplication facts. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 349( Differentiation Options) -354.
- h. Students use a place-value chart to help them read and write numbers up to the billions place. Students use dot paper to explore the relationships among a thousand, a million, and a billion. Students analyze data on Internet users. Students practice and maintain skills through Math Boxes and Study Link activities .T. p. 355( Differentiation Options) -360.
- i. Students fill in a place-value chart that shows place-value heading expressed as powers of 10. They use exponential notation to represent powers of 10. Students play *Polygons Pair- Up* to practice naming properties of polygons. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 361( Differentiation Options) -366.

- 5.10 Students discuss the reliability of large population counts, such as numbers of marathon runners and attendance figures for sports events. They use these figures to review and practice rounding to a given place. Students take 50-fact test. They use a line graph to record individual and class scores. Then student find the median and calculate the mean of class scores. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 367( Differentiation Options) -372.
- 5.11 Students use the World Tour section of the Student Reference Book to look up populations, area, and climate data for countries and capitals of Europe. They identify the maximum and minimum values for each count or measure. They compare counts and measures by comparing the initial digits of the numbers. Students continue their World Tour by traveling from Cairo, Egypt, to Budapest, Hungary. They update their Route Map and complete the Country Notes for Hungary. Students who are keeping a Route Log update it. Students practice and maintain skills through Math Boxes and Study Link activities .T. p. 373( Differentiation Options) -377.
- 5.12 Progress Check 5 is a cumulative assessment of concepts and skills taught in Unit 5 and in previous units. T. p. 378-381.

## UBD UNIT 6 - Grade 4

<b>Title:</b> Everyday Mathematics	<b>Subject/Course:</b> Math
<b>Topic:</b> Division; Map Reference Frames; Measure of Angles	<b>Grade:</b> 4 <b>Designer:</b> Renee Hart
<b>Stage 1- Desired Results</b>	
<p><b><u>Established Goals:</u></b></p> <p><b>Standards of Mathematical Practices ( SMP) 1-8</b></p> <p><b>4.NBT.2.</b> Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p><b>4.NBT.3.</b> Use place value understanding to round multi-digit whole numbers to any place.</p> <p><b>4.NBT.6.</b> Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p><b>4.OA.3.</b> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding .</p> <p><b>4.OA.4.</b> Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.</p> <p><b>4.MD.2.</b> Use the four operations to solve word problems involving Distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p> <p><b>4.MD.5.</b> Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement</p> <ol style="list-style-type: none"> <li>a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through <math>\frac{1}{360}</math> of a circle is called a “one-degree angle,” and can be used to measure angles</li> <li>b. An angle that turns through <math>n</math> one-degree angles is said to have an angle measure of <math>n</math> degrees .</li> </ol>	



<p><b>4.MD.6.</b> Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</p> <p><b>4.MD.7.</b> Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.</p>	
<p><b>Understandings:</b> Students will understand that...</p> <p>22. Division is an essential skill that we use every day when dealing with money, measurement, or data collection.</p> <p>23. Division is rapid subtraction, and multiplication is rapid addition. Both algorithms can be interchanged.</p> <p>24. Remainders are leftovers. You must decide whether to save it or throw it away.</p> <p>25. Space, distances, and numbers can be infinite. We need <math>x</math> and <math>y</math> coordinates or angles to find locations.</p> <p>26. Angles are everywhere from knees and elbows to architecture and design. Angles give structure, support, and location.</p> <p>27. The world is filled with number stories or world problems. It is important to analyze the data to determine what information is relevant and irrelevant.</p> <p>28. Knowing the reasonableness of an answer comes from using good number sense and estimation strategies</p>	<p><b>Essential Questions:</b></p> <p>21. Why is it important to learn multiplication and division basic facts?</p> <p>22. How can we decide which algorithm to use in a particular situation?</p> <p>23. Is the remainder/integer relevant in finding the solution?</p> <p>24. How can angles assist in locating points in a plane?</p> <p>25. What makes an estimate reasonable?</p>
<p><b>Students will know and be able to...</b></p> <p>40. Solve multiplication and division number stories and problems.</p> <p>41. Interpret a remainder in the of a division problem.</p> <p>42. Make reasonable estimates for whole number multiplication and division problems and explain how the estimates were obtained.</p> <p>43. Round numbers to a given place.</p> <p>44. Draw and measure angles with full- circle or half circle protractors.</p> <p>45. Use ordered number pairs to locate points on a map.</p> <p>46. Classify angles according to their measure.</p> <p>47. Insert parentheses to make a true number sentences.</p>	
<p><b>Stage 2- Assessment Evidence</b></p>	

<p><b>Performance Tasks:</b></p> <p>6. Unit 6 Open Response p. 183  <u>A Trip to Adventure Land:</u> The students in Ms. Brown’s and Mr. Ron’s classes at Ridge Elementary School are going on a field trip to Adventure Land. There are 28 students in each class. Mr. Ron’s class secretary has the following information about admission prices:</p> <p>Adventure Land Special Group Rates:  One class - \$80.00  Adults (1 for every 10 students) –Free</p> <p>It costs \$80.00 to rent a bus for a day. One bus can hold 66 people. Calculate the amount of money each student needs to pay for the trip. Explain your strategy.</p>	<p><b>Other Evidence:</b></p> <p>41. Unit 6 Self-Assessment pg. 179  42. Unit 6 Written Assessment p. 180-182  43. Every day Mathematics Games  44. Exit Slips  45. Math Logs  46. Red Star activities  47. Differentiation Options  48. Technology: Assessment Management System Unit 6 . <i>See iTLG.</i></p>
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### Stage 3- Learning Plan

**UNIT LENGTH:** 13- 16 days

#### Unit 6: Division; Map Reference Frames; Measure of Angles

- a. Students use Multiplication /Division Diagrams to help organize information in number stories and decide what to do. They write number models that summarize their solutions. Students solve extended multiplication facts. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 400( Differentiation Options) -405.
- b. Students explore a multiples-of-ten strategy as one of many ways to solve equal-grouping division stories. Students play *High-Number Toss* to practice place-value skills and comparing numbers. Students practice and maintain skills through Math Boxes and Study Link activities. T. p 406( Differentiation Options) -412.
- c. Students learn and practice a paper-and-pencil algorithm for division that permits them to build up the quotient by working with “easy” numbers. Students solve problems involving various basic skills with decimals. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 412( Differentiation Options) - 418.
- d. Students express remainders in division problems as fractions that become part of mixed-numbers answers or as decimals. They solve other division problems in which the remainder is either rounded up or ignored. Students play *Division Dash* to practice dividing 2- or3- digit dividends by 1- digit divisors. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 419( Differentiation Options) -424.
- e. Students review clockwise rotations. They make full-circle protractors by

measuring rotations in degrees; then they use the protractors to form angles of given measure. Students make a bar graph showing percent of populations (0-14) for Region 2 countries. Students practice and maintain skills through Math Boxes and Study Link activities.

T. p. 425( Differentiation Options) - 430.

- f. Students use transparent protractors that resemble the full-circle protractors they labeled with degrees in Lesson 6.5. They use these protractors to measure and draw angles. Students play *Division Dash* to practice dividing 2-or-3- digit dividends by 1- digit divisors. Students practice and maintain skills through Math Boxes and Study Link activities.

T. p. 431( Differentiation Options) -436.

- g. Students identify types of angles and measure angles with a half- circle protractor. They identify an angle as obtuse or acute to help them determine which protractor scale they should use. They draw angles with half-circle protractors. Students resume the World Tour in Europe. Students practice and maintain skills through Math Boxes and Study Links activities.

T. p. 437( Differentiation Options) -442.

- h. Students use letter-number pairs to find locations on a map of Ireland. They use ordered pairs of numbers to identify points, give directions, and describe routes of a campground map. Students use a map scale to estimate distances. Students play *Angle Tangle* to practice estimating the measure of angles and measuring angles. . Students practice and maintain skills through Math Boxes and Study Links activities. T. p. 443( Differentiation Options) -449.

- i. Students locate and discuss important features of the world globe. They use latitude and longitude to locate places on a globe, a world map, and regional maps. Student play *Over and Up Squares* to practice coordinate grid skills. . Students practice and maintain skills through Math Boxes and Study Links activities. T. p. 449( Differentiation Options) -455.

- j. Students review and practice a paper-and-pencil algorithm for division that permits them to build up the quotients by working with “easy” numbers. Students focus on problems with 2-digit divisors. Students take a 50-fact test. They uses a line graph to record individual and class scores. Then student find the median and calculate the mean of all class scored. . Students practice and maintain skills through Math Boxes and Study Links activities.

T. p.455( Differentiation Options) - 459.

- k. Progress Check 6 is a cumulative assessment of concepts and skills taught in Unit 6 and in previous units. T. p. 460- 463.

## UBD UNIT 7 - Grade 4

<b>Title:</b> Everyday Mathematics	<b>Subject/Course:</b> Math
<b>Topic:</b> Fractions and Their Uses; Chance and Probability	<b>Designer:</b> Renee Hart
<b>Grade:</b> 4	
<b>Stage 1- Desired Results</b>	
<p><b><u>Established Goals:</u></b></p> <p><b>Standards of Mathematical Practices ( SMP) 1-8</b></p> <p><b>4.NBT.2.</b> Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons</p> <p><b>4.NF 1.</b> Explain why a fraction <math>a/b</math> is equivalent to a fraction <math>(n \times a)/(n \times b)</math> by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.</p> <p><b>4.NF 2.</b> Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as <math>1/2</math>. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model.</p> <p><b>4.NF 3.</b> Understand a fraction <math>a/b</math> with <math>a &gt; 1</math> as a sum of fractions <math>1/b</math>.</p> <ol style="list-style-type: none"> <li>a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole</li> <li>b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. <i>Examples:</i> <math>3/8 = 1/8 + 1/8 + 1/8</math>; <math>3/8 = 1/8 + 2/8</math>; <math>2\ 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8</math>.</li> <li>c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.</li> <li>d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.</li> </ol> <p><b>4.NF 4.</b> Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <ol style="list-style-type: none"> <li>a. Understand a fraction <math>a/b</math> as a multiple of <math>1/b</math>. <i>For example, use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>.</i></li> <li>b. Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this understanding to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express <math>3 \times (2/5)</math> as <math>6 \times (1/5)</math>, recognizing this product as <math>6/5</math>. (In general, <math>n \times (a/b) = (n \times a)/b</math>.)</i></li> <li>c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. <i>For example, if each person at a party will eat <math>3/8</math> of a pound</i></li> </ol>	

*of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*

**4.NF.5.** Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express  $3/10$  as  $30/100$ , and add  $3/10 + 4/100 = 34/100$ .* [“Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.”]

**4.NF.6.** Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite  $0.62$  as  $62/100$ ; describe a length as  $0.62$  meters; locate  $0.62$  on a number line diagram.*

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

**4.MD.6.** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

**4.MD.7.** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

**4.OA.4.** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

### Understandings:

Students will understand that...

29. Fractions/ Decimals are used to measure a multitude of things ranging from length, money, to probability. They help us make sense of what precedes or is between whole numbers.
30. Fraction rules are the opposite of whole numbers. The larger the fractions denominator the smaller the fraction.
31. Fractions should be rounded to three benchmarks 0,  $\frac{1}{2}$ , or 1. When trying to determine their relationships to whole numbers.
32. Fractions have an infinite

### Essential Questions:

26. How can we decide which algorithm to use in a particular situation?
27. Why do we need fractions /decimals when describing and measuring data?
28. How are fractions and decimals related?
29. How can understanding probability assist in making reasonable choices?
30. How can counting, measuring, or labeling help us make sense of the world around us?

<p>number of equivalent possibilities.</p> <p>33. Life is full of possibilities. Probability describes the likelihood of and event happening.</p> <p>34. Space, distances, and numbers can be infinite. We need <math>x</math> and <math>y</math> coordinates or angles to find locations.</p>	
<p><b>Students will know and be able to...</b></p> <p>48. Solve problems involving fractional parts of regions and collection: identify the ONE.</p> <p>49. Rename tenths and hundredths as decimals.</p> <p>50. Find equivalent fractions.</p> <p>51. Compare and order fractions.</p> <p>52. Solve multidigit multiplications and division problems.</p> <p>53. Add and subtract fractions.</p> <p>54. Use ordered pairs to locate on a coordinate grid.</p> <p>55. Use basic probability terms.</p> <p>56. Calculate expected probability.</p>	
<p><b>Stage 2- Assessment Evidence</b></p>	
<p><b>Performance Tasks:</b></p> <p>7. Unit 7 Open Response p. 188 <u>Queen Arlene's Dilemma:</u> Queen Arlene has a problem. She wants to divide her land among her 3 children. She wants her oldest daughter to get <math>\frac{1}{2}</math> of her land and her younger daughters to each get <math>\frac{1}{3}</math> of the land. Can she do it? Explain your answer.</p> <p>After thinking about it Queen Arlene decides to keep <math>\frac{1}{2}</math> of her land and have her 3 children divide the other <math>\frac{1}{2}</math>. She still wants the oldest daughter to get more land than her sisters. Think of a way to use fractions to divide the land. Explain your answer,</p>	<p><b>Other Evidence:</b></p> <p>49. Unit 7 Self-Assessment pg. 184</p> <p>50. Unit 7 Written Assessment p. 185-187</p> <p>51. Every day Mathematics Games</p> <p>52. Exit Slips</p> <p>53. Math Logs</p> <p>54. Red Star activities</p> <p>55. Differentiation Options</p> <p>56. Technology: Assessment Management Systems Unit 7. <i>See iTLG</i></p>
<p><b>Stage 3- Learning Plan</b></p>	

**UNIT LENGTH: 15-18 days**Unit 7 : Fractions and Their Uses; Chance and Probability

- 7.1 Students review the meaning and uses of fractions. They draw various pattern-blocks shapes and color a fractional part of each shape. Students play *Product Pile –Up* to develop automaticity with multiplication facts. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 570( Differentiation Options) -575.
- 7.2 Students find fractions of a whole when the whole is a collection of objects. Students continue the World Tour. Students practice and maintain skills through Math Boxes and Study Link activities. T. p.576( Differentiation Options) -580.
- 7.3 Students use terms such as certain, very likely, likely, 50-50 chance, unlikely, and very unlikely, and impossible to describe the likelihood of an event. They calculate the probabilities for a playing card experiment that has equally likely outcomes. Students play *Fraction Of* to practice finding fractional parts of sets. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 581( Differentiation Options) -586.
- 7.4 Students use pattern blocks to partition 2-dimensional shapes, and they name fractional parts of regions. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 587( Differentiation Options) -591.
- 7.5 Students model fraction sums and differences with pattern blocks. Student play *Angle Tangle* to practice measuring and estimating the measure of angles. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 592 ( Differentiation Options) - 597.
- 7.6 Students use Fraction Cards to help them start a table of equivalent fractions. Students play *Grab Bag* to practice calculation the probability of an event. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 598( Differentiation Options) -602.
- 7.7 Students use examples of equivalent fractions to develop a rule for finding equivalent fractions. Students play *Fraction Match* to practice naming equivalent fractions. Students practice and maintain skills through Math Boxes and Study Link activities. T p. 603( Differentiation Options) -608.
- 7.8 Students rename fractions as decimals and decimals as fractions. They also explore the relationship between fractions and division. Students take 50- facts test. They use a line graph to record individual and class scores. Then students find the median and calculate the mean of class scores. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 609( Differentiation Options) -614.
- 7.9 Students use Fraction Cards to determine whether a fraction is greater or less than another fraction and then order sets of Fraction Cards from smallest to largest. They also compare fractions to  $\frac{1}{2}$  and write different sets of fractions in order. Students play *Over and Up Squares* to practice plotting ordered numbers pairs on a coordinate grid. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 615 ( Differentiation Options) -620.
- 7.10 Students use pattern blocks and counters to find the ONE for given fractions, and they solve “What is the ONE?” problems. Students play *Fractions Top-It* to practice comparing fractions. Students practice and maintain skills through Math Boxes and Study Link activities. T. p.621( Differentiation Options) -625.

- 7.11 Students apply basic concepts and vocabulary associated with chance events. Students play *Chances Are* to practice using probability language and describing the likelihood of an event happening. Students practice and maintain skills through Math Boxes and Study Link activities. T. p.626( Differentiation Options) - 631.
- 7.12 Students color a 10-by-10 grid. They determine the chance that a centimeter cube, dropped onto the grid, will land on a particular color. They perform the experiment and compare the actual results with their predictions. Students solve place value problems. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 632( Differentiation Options) - 637.
- 7.13 Progress Check 7 is a cumulative assessment of concepts and skills taught in Unit 7 and in previous units. T. p. 638-741.



## UBD UNIT 8 - Grade 4

<b>Title:</b> Everyday Mathematics	<b>Subject/Course:</b> Math
<b>Topic:</b> Perimeter and Area	<b>Designer:</b> Renee Hart
<b>Grade:</b> 4	
<b>Stage 1- Desired Results</b>	
<p><b><u>Established Goals:</u></b></p> <p><b>Standards of Mathematical Practices ( SMP) 1-8</b></p> <p><b>4.NBT.2.</b> Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p><b>4.NBT.3.</b> Use place value understanding to round multi-digit whole numbers to any place.</p> <p><b>4.NF 1.</b> Explain why a fraction <math>a/b</math> is equivalent to a fraction <math>(n \times a)/(n \times b)</math> by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.</p> <p><b>4.NF 2.</b> Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as <math>1/2</math>. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model.</p> <p><b>4.NF 4.</b> Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>d. Understand a fraction <math>a/b</math> as a multiple of <math>1/b</math>. <i>For example, use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>.</i></p> <p>e. Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this understanding to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express <math>3 \times (2/5)</math> as <math>6 \times (1/5)</math>, recognizing this product as <math>6/5</math>. (In general, <math>n \times (a/b) = (n \times a)/b</math>.)</i></p> <p>f. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. <i>For example, if each person at a party will eat <math>3/8</math> of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</i></p> <p><b>4.NF.6.</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite <math>0.62</math> as <math>62/100</math>; describe a length as <math>0.62</math> meters; locate <math>0.62</math> on a number line diagram.</i></p> <p><b>4.MD.2.</b> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line</p>	

diagrams that feature a measurement scale.

**4.MD.3.** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*

**4.G.1.** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

**4.G.2.** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

### Understandings:

Students will understand that...

35. Fractions/ Decimals are used to measure a multitude of things ranging from area, money, to probability. They help us make sense of what precedes or is between whole numbers.
36. Fractions should be rounded to three benchmarks 0,  $\frac{1}{2}$ , or 1. When trying to determine their relationships to whole numbers, and comparing.
37. Measurement is a crucial skill that is used every day. For example measurement is used when driving a car, designing clothing, or decorating and building a home.
38. Mathematical formulas make measurement faster and easier.
39. Multiplication and Division are essential skills that we use every day when dealing with money, measurement, or data collection.
40. Plane figures can be described, classified, and analyzed by their attributes.

### Essential Questions:

31. How can we decide which algorithm to use in a particular situation?
32. Why do we need fractions /decimals when describing and measuring data?
33. How are fractions and decimals related?
34. How can counting, measuring, or labeling help us make sense of the world around us?
35. What makes an estimate reasonable?
36. How are geometric properties used to construct geometric figures?

**Students will know and be able to...**

57. Rename tenths and hundredths as decimals.
58. Order fractions.
59. Use manipulatives, mental arithmetic, and calculators to add and subtract fractions.
60. Use scaling to model multiplication and division.
61. Predict the outcomes of experiments: express the probability of an event as a fraction.
62. Measure length to the nearest centimeter.
63. Describe and use strategies to measure the perimeters of polygons.
64. Describe and use strategies to find the areas of polygons.
65. Describe and compare plane figures using appropriate geometric terms.

**Stage 2- Assessment Evidence****Performance Tasks:**

Unit 8 Open Response p. 193-194

**Comparing Areas:**

8. Arrange shapes A-D in order of area. (You may not use a ruler.) List the letters of the shapes from largest to smallest. If some shapes have the same area, write the letters next to each other and circle them.
9. Explain the steps you followed to figure out the order of each of the shapes. You may draw pictures to illustrate your steps.
10. Compare shapes A-E. Tell which has the larger area. Explain how you compared the shapes.

**Other Evidence:**

57. Unit 8 Self-Assessment pg. 189
58. Unit 8 Written Assessment p. 190-192
59. Every day Mathematics Games
60. Exit Slips
61. Math Logs
62. Red Star activities
63. Differentiation Options
64. Technology: Assessment Management System Unit 8.  
*See iTLG*

**Stage 3- Learning Plan**

**UNIT LENGTH:** 12-15 days

**Unit 8: Perimeter and Area**

- 8.1 Students sketch arrangements of their kitchen appliances. They calculate the perimeter of the work triangle and compare individual and class results with recommended distances. Students find landmarks of the perimeter data collected. Students play *Fraction Match* to practice naming equivalent fractions. Students practice and maintain skills through Math Boxes and Study Links T. p. 658 (Differentiation Options) -663.
- 8.2 Students make a rough floor plan of the classroom. They use the rough floor plan to create a scale drawing of the classroom on grid paper. Students take a 50-fact test. They use a line graph to record individual and class scores. Then students find the median and calculate the mean of the class scores. Students practice and maintain skills through Math Boxes and Study Links

- T. p. 664( Differentiation Options) - 669.
- 8.3 Students review the meaning of area as a measure of a surface in squares units and estimate polygon areas in square centimeters by counting unit squares. They use the scale drawing made in Lesson 8-2 to find the area of the classroom floor. Students play *Fraction Top-It* to practice comparing and ordering fractions. Students practice and maintain skills through Math Boxes and Study Links T. 670( Differentiation Options) - 674.
- 8.4 Students estimate the area of the front of their hand by tracing it on a 1- inch grid and counting squares. Then they use a rule of thumb to estimate their total skin area. Students convert measurements from square inches to square feet and from square feet to square yards. Student resume the World Tour in South America Students practice and maintain skills through Math Boxes and Study Links T. p. 675( Differentiation Options) - 680.
- 8.5 Students count to find the area of rectangles and then develop a formula for the area of a rectangle. They use the formula to find the area of a rectangle whose length and/or width is not a whole number of units. Students plot and name points on a coordinate grid. Students practice and maintain skills through Math Boxes and Study Links T.681( Differentiation Options) -686.
- 8.6 Students construct models of parallelograms and use them to review properties of parallelograms. Students cut apart and rearrange parallelogram shapes; they develop and use a formula for the area of parallelogram. Students play *Fraction Of* to practice finding fractions of collections. Students practice and maintain skills through Math Boxes and Study Links T. p. 687( Differentiation Options) -692.
- 8.7 Students arrange triangles to form parallelograms. They develop and use formula for finding the area of a triangle. Students identify fractional parts of number lines, collections of objects, and regions. Students practice and maintain skills through Math Boxes and Study Links T. 693( Differentiation Options) - 698.
- 8.8 Students examine ho geographical areas are measured and the difficulties involved in making accurate measurements. They compare the areas of different countries by guessing and then using division to calculate the ration of areas. Students play *Grab Bag* to practice calculating the probability of and events. Students practice and maintain skills through Math Boxes and Study Links T. 699( Differentiation Options) -703.
- 8.9 Progress Check 8 is a cumulative assessment of concepts and skills taught in Unit 8 and in previous units. T. pg. 704- 707.

## UBD UNIT 9 - Grade 4

<b>Title:</b> Everyday Mathematics	<b>Subject/Course:</b> Math
<b>Topic:</b> Fractions, Decimals, and Percents	<b>Grade:</b> 4
<b>Designer:</b> Renee Hart	
<b>Stage 1- Desired Results</b>	
<p><b><u>Established Goals:</u></b></p> <p><b>Standards of Mathematical Practices ( SMP) 1-8</b></p> <p><b>4.NBT.5.</b> Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p><b>4.NBT.6.</b> Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p><b>4.NF 1.</b> Explain why a fraction <math>a/b</math> is equivalent to a fraction <math>(n \times a)/(n \times b)</math> by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.</p> <p><b>4.NF 2.</b> Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as <math>1/2</math>. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model.</p> <p><b>4.NF.5.</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. <i>For example, express <math>3/10</math> as <math>30/100</math>, and add <math>3/10 + 4/100 = 34/100</math>.</i> [“Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.”]</p> <p><b>4.NF.6.</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite <math>0.62</math> as <math>62/100</math>; describe a length as <math>0.62</math> meters; locate <math>0.62</math> on a number line diagram.</i></p> <p><b>4.MD.1.</b> Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i></p> <p><b>4.MD.2.</b> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that</p>	

require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

**4.MD.3.** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*

**4.MD.7.** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

**4.OA.3.** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

**4.G.1.** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

**4.G.2.** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

### Understandings:

Students will understand that...

41. Fractions, decimals, and percents are used to measure a multitude of things ranging from measurement, money, to discounts.
42. Decimals use the same base-ten place value system as whole numbers except we add “*ths*” to the word. *Example hundreds (whole numbers) and hundredths (decimals).*
43. Decimals, fractions, and percents are interchangeable. They are all varying ways to represent the same number.
44. Multiplication and Division are essential skills that we use every day when dealing with money, measurement, or data collection.
45. Calculators are an important tool to process algorithms quickly and accurately. They also assist in converting numbers quickly from

### Essential Questions:

37. How can we decide which algorithm to use in a particular situation?
38. Why do we need fractions /decimals when describing and measuring data?
39. How are fractions, decimals, and percents related?
40. How can counting, measuring, or labeling help us make sense of the world around us?
41. What makes an estimate reasonable?
42. How are geometric properties used to construct geometric figures?

- decimals, fractions, and percent.
46. Plane figures can be described, classified, and analyzed by their attributes.

**Students will know and be able to...**

66. Find a fraction or a percent of a number.
67. Rename fractions as decimals and percents.
68. Use an estimation strategy to divide decimals by whole numbers.
69. Use an estimation strategy to multiply decimals by whole numbers.
70. Find the area and perimeter of polygons.
71. Insert grouping symbols to make number sentences true.

**Stage 2- Assessment Evidence**

**Performance Tasks:**

Unit 9 Open Response p. 199  
Designing a Floor: Mrs. Wyman is tiling her floor in a colorful pattern. She know what colors she wants to use and what percent of the floor each color will be.

Find how many tiles of each color Mrs. Wyman needs. Show and explain your work.

<u>Color</u>	<u>Percent of Tiles</u>	<u>Number of Tiles</u>
Blue	40%	?
Red	25%	?
Yellow	20%	?
Green	10%	?
Orange	?	?
Total	?	100

Make a design using Mrs. Wyman's tiles on a 10-by-10 grid squares.

**Other Evidence:**

65. Unit 9 Self-Assessment pg. 195
66. Unit 7 Written Assessment p. 196-198
67. Every day Mathematics Games
68. Exit Slips
69. Math Logs
70. Red Star activities
71. Differentiation Options
72. Technology: Assessment Management System Unit 9.  
*See iTLG.*

**Stage 3- Learning Plan**



**UNIT LENGTH:** 12-15 daysUnit 8 : Fractions, Decimals, and Percents

- 9.1 Students discuss uses of percents in everyday life. They represent various percent situations by shading 10- by- 10 grid squares, and they restate each percent situation using a fraction name and decimal name. Students play *Fraction Match* to practice naming equivalent fractions. Students practice and maintain skills through Math Boxes and Study Link activities.  
T. p. 722( Differentiation Options) -727.
- 9.2 Students name shaded parts of 10-by-10 grids as fractions, decimals, and percents. The shaded parts are all “easy” fractions, fifths, and tenths. Students solve percent problems by substituting “easy fractions for percents. Students play *Rugs and Fences* to practice finding the area and perimeter of a polygon. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 728( Differentiation Options) - 733.
- 9.3 Students rename fractions as decimals by dividing on their calculators. Students observe that the decimal equivalent to a fraction is either a terminating decimal or a repeating decimal. Students play *Fraction/Percent Concentration* to practice “easy” fraction/percent equivalencies. Students practice and maintain skills through Math Boxes and Study Link activities.  
T. p. 734( Differentiation Options) -738.
- 9.4 Students use the percent key on a calculator to rename fractions as percents. They rename fractions as decimals by dividing, and they are shown that a decimal can be easily renamed as a percent by multiplying it by 100. Students solve number stories involving discounts expressed as percents. Students create a bar graph using cellular-telephone-use data. Students practice and maintain skills through Math Boxes and Study Link activities.  
T. p. 739( Differentiation Options) -743.
- 9.5 Students look up country population and land area data and convert these to percents of the world population and land area. Students complete the percent column of the Equivalent Names for Fraction tables on journal pgs. 342-342. Students continue the World Tour. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 744( Differentiation Options) - 750.
- 9.6 Students tabulate the results from the trivia survey distributed in Lesson 9.1. For each survey question, they write a fraction to express the numbers of Yes answers as part of the total number of answers. Then they convert each fraction to a percent. Students take a 50-fact test. They use a line graph to record individual and class scores. Then students find the median and calculate the mean of the class scores. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 750( Differentiation Options) - 755.
- 9.7 Students rank the countries in Region 4 (Asia and Australia) according to the percent of the population that is rural and the percent of the population that is 14 years old or younger. Students color maps o display the ranked data and interpret the maps. Students solve probability problems. Students practice and maintain skills through Math Boxes and Study Link activities.  
T. p. 756( Differentiation Options) - 761.
- 9.8 Students use an estimation strategy for multiplying decimals. They solve a set of decimal multiplication problems that offers review and practice of the partial-



products and lattice algorithms. Students play *Over and Up Squares* to practice locating and plotting points on a coordinate grid. Students practice and maintain skills through Math Boxes and Study Link activities.

T. p. 762( Differentiation Options) - 768.

9.9 Students use an estimation strategy for dividing decimals. They solve division problems that offer review and practice of the partial-quotients division algorithm. Students play *Polygon Pair-Up* to practice identifying properties of polygons. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 768( Differentiation Options) - 773.

9.10 Progress Check 9 is a cumulative assessment of concepts and skills taught in Unit 9 and in previous units. T. pgs. 774-777.

## UBD UNIT 10 - Grade 4

<b>Title:</b> Everyday Mathematics	<b>Subject/Course:</b> Math
<b>Topic:</b> Reflections and Symmetry	<b>Designer:</b> Renee Hart
<b>Grade:</b> 4	
<b>Stage 1- Desired Results</b>	
<p><b><u>Established Goals:</u></b></p> <p><b>Standards of Mathematical Practices ( SMP) 1-8</b></p> <p><b>4.NF.4.</b> Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p style="padding-left: 20px;">g. Understand a fraction <math>a/b</math> as a multiple of <math>1/b</math>. <i>For example, use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>.</i></p> <p style="padding-left: 20px;">h. Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this understanding to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express <math>3 \times (2/5)</math> as <math>6 \times (1/5)</math>, recognizing this product as <math>6/5</math>. (In general, <math>n \times (a/b) = (n \times a)/b</math>.)</i></p> <p style="padding-left: 20px;">i. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. <i>For example, if each person at a party will eat <math>3/8</math> of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</i></p> <p><b>4.NF.5.</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. <i>For example, express <math>3/10</math> as <math>30/100</math>, and add <math>3/10 + 4/100 = 34/100</math>. [“Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.”]</i></p> <p><b>4.NF.6.</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite <math>0.62</math> as <math>62/100</math>; describe a length as <math>0.62</math> meters; locate <math>0.62</math> on a number line diagram.</i></p> <p><b>4.MD.1.</b> Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i></p> <p><b>4.OA.5.</b> Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i></p> <p><b>4.G.1.</b> Draw points, lines, line segments, rays, angles (right, acute, obtuse),</p>	

and perpendicular and parallel lines. Identify these in two-dimensional figures.

**4.G.2.** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

**4.G.3.** Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

**Understandings:**

**Students will understand that...**

47. Geometry is the fundamental structure of matter created in nature and created by man.
48. Symmetry brings beauty and balance to nature, architecture, and design.
49. Plane figures can be described, classified, and analyzed by their attributes.
50. Plane figures can be transformed in an infinite number of ways.
51. Decimals, fractions, and percents are interchangeable. They are all varying ways to represent the same number.
52. Positive and negative values are similar to adding and subtracting. They assist us in understanding increases and decreases of data ranging from temperature to debt.

**Essential Questions:**

4. How are geometric properties used to construct geometric figures?
5. What situations can be analyzed using transformations?
6. How can we decide which algorithm to use in a particular situation?
7. How are fractions, decimals, and percents related?
8. Why do we need negative numbers?
9. How can counting, measuring, or labeling help us make sense of the world around us?
10. What makes an estimate reasonable?

**Students will know and be able to...**

1. Name equivalent fractions, decimals, and percents.
2. Add signed numbers.
3. Add and subtract fractions.
4. Measure reasonableness estimates for multiplication and division problems.
5. Measure and angle.
6. Locate multiple lines of symmetry in two-dimensional shape.
7. Identify and sketch examples of reflections; identify examples of translations and rotations.

**Stage 2- Assessment Evidence**

**Performance Tasks:**

11. Unit 1 Open Response p. 204-205. Pentominoes : Cut out pentominoes on page 205. Use them to cover four rectangles below in different ways. You must use the designated pentominoe only once in each of rectangles. Record your solutions by tracing the pentominoes.
12. Explain the strategy you used to position the designated pentominoe in your solution. Include words flip, slide, and turn in your explanation.
13. The cross pentominoe cannot be used as one of the pieces to cover a rectangle. Explain why this is true.

**Other Evidence:**

73. Unit 10 Self-Assessment pg. 200
74. Unit 10 Written Assessment p. 201-203
75. Every day Mathematics Games
76. Exit Slips
77. Math Logs
78. Red Star activities
79. Differentiation Options
80. Technology: Assessment Management System Unit 10. *See iTLG*

**Stage 3- Learning Plan****UNIT LENGTH:** 10- 12 daysUnit 10: Reflections and Symmetry

- 10.1 Students experiment with reflections using a transparent mirror to move and draw reflected images. Students play *Over and Up Squares* to practice locating and plotting points on a coordinate grid. Students practice and maintain skills through Math Boxes and Study Link activities.  
T. p.794( Differentiation Options) - 798.
- 10.2 Students play games that involve reflections, such as the *Dart Game* and *Pocket Billiards Game*. They explore finding the line of reflection of a reflected image. Students play *Angle Tangle* to practice estimating the measure of angles and measuring angles. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 799( Differentiation Options) -804.
- 10.3 Students use a transparent mirror to discover basic properties of reflections. They draw reflected images. Students resume the World Tour in Region 4. Students practice and maintain skills through Math Boxes and Study Link activities. T. p.805( Differentiation Options) -809.
- 10.4 Students use a transparent mirror to complete symmetric pictures and to find lines of symmetry in symmetric objects. They fold paper to sort polygons by the number of lines of symmetry. Students practice and maintain skills through Math Boxes and Study Link activities.  
T. p. 810( Differentiation Options) - 816.
- 10.5 Students read about frieze patterns in which a design is repeatedly reflected, rotated, or translated to produce a pattern. They complete frieze patterns and

- create their own. Students play *Polygon Pair-Up* to practice identifying properties of polygons. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 816( Differentiation Options) - 821.
- 10.6 Students review positive and negative numbers on the number line, thinking of them as reflected across the zero point. They discuss and practice addition of positive and negative numbers as accounting problems, keeping track of “credits” and “debt.” They play the *Credit/Debits Game*. Students solve problems involving fractions, decimals, and percents. Students practice and maintain skills through Math Boxes and Study Link activities.  
T. p. 822( Differentiation Options) - 828.
- 10.7 Progress Check 10 is a cumulative assessment of concepts and skills taught in Unit 10 and in previous units. T. p. 828-831.

## UBD UNIT 11 - Grade 4

<b>Title:</b> Everyday Mathematics	<b>Subject/Course:</b> Math
<b>Topic:</b> 3-D Shapes, Weight, Volume, and Capacity	<b>Grade:</b> 4
<b>Designer:</b> Renee Hart	
<b>Stage 1- Desired Results</b>	
<p><b><u>Established Goals:</u></b></p> <p><b>Standards of Mathematical Practices ( SMP) 1-8</b></p> <p><b>4.NBT.3.</b> Use place value understanding to round multi-digit whole numbers to any place.</p> <p><b>4.NF 4.</b> Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p style="padding-left: 20px;">j. Understand a fraction <math>a/b</math> as a multiple of <math>1/b</math>. <i>For example, use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>.</i></p> <p style="padding-left: 20px;">k. Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this understanding to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express <math>3 \times (2/5)</math> as <math>6 \times (1/5)</math>, recognizing this product as <math>6/5</math>. (In general, <math>n \times (a/b) = (n \times a)/b</math>.)</i></p> <p><b>4.MD.1.</b> Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i></p> <p><b>4.MD.2.</b> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p> <p><b>4.MD.3.</b> Apply the area and perimeter formulas for rectangles in real world and mathematical problems. <i>For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</i></p> <p><b>4.OA.3.</b> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p><b>4.NF 3.</b> Understand a fraction <math>a/b</math> with <math>a &gt; 1</math> as a sum of fractions <math>1/b</math>.</p> <p style="padding-left: 20px;">c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction</p> <p style="padding-left: 20px;">d. Solve word problems involving addition and subtraction of fractions</p>	

referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

**Understandings:**

Students will understand that...

53. Measurement is a crucial skill that is used every day. Measurement is used when driving a car, designing clothing, cooking a meal, or decorating and building a home.
54. Mathematical formulas make measurement faster and easier.
55. Multiplication and Division are essential skills that we use every day when dealing with money, measurement, or data collection.
56. Geometric Solids and plane figures can be described, classified, and analyzed by their attributes.
57. Positive and negative values are similar to adding and subtracting. They assist us in understanding increases and decreases of data ranging from temperature to debt.

**Essential Questions:**

43. How can we decide which algorithm to use in a particular situation?
44. Why do we need fractions /decimals when describing and measuring data?
45. How can counting, measuring, or labeling help us make sense of the world around us?
46. What makes an estimate reasonable?
47. How are geometric properties used to construct geometric figures?
48. How are 1, 2, and 3 dimensional shapes related?
49. Why do we need negative numbers?

**Students will know and be able to...**

72. Add and subtract signed numbers.
73. Multiply and divide whole numbers and decimals.
74. Round decimals to nearest tenth.
75. Make reasonable estimates for whole number and decimals multiplication problems; explain how the estimates were obtained.
76. Describe events using basic probability terms.
77. Estimate weight with and without foods.
78. Describe and use strategies to find the volume of a rectangular prism.
79. Describe relationships among units of weight, length, and capacity.
80. Identify, describe, compare, and classify plane and solid figures.

**Stage 2- Assessment Evidence**

**Performance Tasks:**

Unit 8 Open Response p. 210

Record Rainfall:

According to the National Weather Service, the most rain that fell in the United States in a 24- hour period was 42 inches. This happened in Alvin, Texas, on July 25 and 26, 1979.

**Other Evidence:**

81. Unit 11 Self-Assessment pg. 206
82. Unit 11 Written Assessment p. 207-209
83. Every day Mathematics Games
84. Exit Slips
85. Math Logs
86. Red Star activities
87. Differentiation Options

<p>Imagine that it rained 42 inches in your classroom. About how many pounds would the water weigh. <i>Hint: 1 cubic foot of water weighs about 62.5 pounds. 1 ton equals 2,000 pounds.</i></p> <ol style="list-style-type: none"> <li>1. List the information you need to solve the problem.</li> <li>2. Explain your plan for solving the problems.</li> <li>3. If 42 inches of rainwater fell in a classroom that is 27 feet wide about how many pounds would the rainwater weigh? Show all of your work.</li> </ol>	<p>88. Technology: Assessment Management System Unit 11. <i>See iTLG.</i></p>
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### Stage 3- Learning Plan

**UNIT LENGTH:** 11-13 days

#### Unit 11 : 3-D Shapes, Weight, Volume, and Capacity

- 11.1 Students review measuring weight in ounces and grams and start a classroom Gram and Ounce Museum. They estimate weights and practice converting between grams and ounces. Students continue the World Tour, traveling to Region 5. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 848( Differentiation Options) -853.
- 11.2 Students review common geometric solids-including prisms, pyramids, cylinders, cones, and spheres- and investigate their properties. Students determine how many of each U.S. coin are needed to make a 1-ounce weights. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 854( Differentiation Options) -859.
- 11.3 Students practice identifying geometric solids by solving riddles about their properties. Students construct polyhedrons with straws and twist-ties. Students explore ways to draw a cube. Students take a 50-facts test. They use a line graph to record individual and class scores. Then students find the median and calculate the mean of the class scores. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 860( Differentiation Options) -865.
- 11.4 Students read and discuss an essay about volume in the *Student Reference Book*. Students use base -10 blocks and meter sticks to visualize the sizes of various metric cubic units. They also make open boxes and fill them with centimeter cubes to determine their volume. Students play the *Credits/Debits Game* to practice addition of integers. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 866( Differentiation Options) -871.
- 11.5 Students solve cube-stacking problems and use the results to derive a formula for the volume of a rectangle prism. Students play *Chances Are* to practice using probability language to describe the likelihood of an event. Students practice



and maintain skills through Math Boxes and Study Link activities.

T. p. 872( Differentiation Options) -877.

11.6 Students discuss and practice subtraction of positive and negative integers, and review addition of such numbers, in the context of an accounting problems.

Student play the *Credits/Debits Game* (Advanced Version).Students summarize the Gram & Ounce Museum. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 878 (Differentiation Options) -883.

11.7 Students review equivalencies between units of capacity. They find the weight of one cup of uncooked rice and use this information to estimate the weights of an average Thai and Bangladeshi family's annual rice consumption. Students create a bar graph to display population data. Students practice and maintain skills through Math Boxes and Study Link activities.

T. p.884( Differentiation Options) -889.

11.8 Progress Check 11 is a cumulative assessment of concepts and skills taught in Unit 11 and in previous units. T. pg. 890-893.

## UBD UNIT 12 - Grade 4

<b>Title:</b> Everyday Mathematics	<b>Subject/Course:</b> Math
<b>Topic:</b> Rates	<b>Designer:</b> Renee Hart
<b>Grade:</b> 4	
<b>Stage 1- Desired Results</b>	
<p><b><u>Established Goals:</u></b></p> <p><b>Standards of Mathematical Practices ( SMP) 1-8</b></p> <p><b>4.NBT.3.</b> Use place value understanding to round multi-digit whole numbers to any place.</p> <p><b>4.MD.1.</b> Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i></p> <p><b>4.MD.2.</b> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p> <p><b>4.OA.3.</b> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p><b>4.OA.4.</b> Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.</p> <p><b>4.NF 2.</b> Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as <math>\frac{1}{2}</math>. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model.</p>	

<p><b>Understandings:</b>  <b>Students will understand that...</b></p> <ol style="list-style-type: none"> <li>58. Measurement is a crucial skill that is used every day. Measurement is used when driving a car, designing clothing, cooking a meal, or building a home.</li> <li>59. Mathematical formulas make measurement faster and easier.</li> <li>60. Multiplication and Division are essential skills that we use every day when dealing with money, measurement, or data collection.</li> <li>61. Addition and Subtraction are essential skills that we use every day when dealing with money, measurement, or data collection.</li> <li>62. Our world is filled with patterns and rules. Algebra is a life- long skill that assists us in making sense of those patterns, discovering the unknown, and creating number stories.</li> </ol>	<p><b>Essential Questions:</b></p> <ol style="list-style-type: none"> <li>50. How can we decide which algorithm to use in a particular situation?</li> <li>51. How can counting, measuring, or labeling help us make sense of the world around us?</li> <li>52. What makes an estimate reasonable?</li> <li>53. How can the collection, organization, interpretation, and display of data be used to answer questions?</li> </ol>
<p><b>Students will know and be able to...</b></p> <ol style="list-style-type: none"> <li>81. Find whole –number factors of numbers.</li> <li>82. Compare and order fractions.</li> <li>83. Compare and order integers.</li> <li>84. Add and subtract signed numbers.</li> <li>85. Add and subtract decimals.</li> <li>86. Solve a problems involving division.</li> <li>87. Use scaling to model rate situations.</li> <li>88. Analyze and interpret data.</li> <li>89. Find the volume of rectangular prisms.</li> <li>90. Solve open sentences.</li> </ol>	
<p><b>Stage 2- Assessment Evidence</b></p>	
<p><b>Performance Tasks:</b>  Unit 12 Open Response p. 215  <u>Buying Cookies:</u> Raheem and India volunteered to buy cookies for the class party. They wanted at least 4 different kinds of cookies, and they wanted to spend as little money as possible. They decided that 3 pounds of cookies would be enough. When they went to the store, they saw these prices for packages of cookies:</p>	<p><b>Other Evidence:</b></p> <ol style="list-style-type: none"> <li>89. Unit 12 Self-Assessment pg. 211</li> <li>90. Unit 12 Written Assessment p. 212-214</li> <li>91. Every day Mathematics Games</li> <li>92. Exit Slips</li> <li>93. Math Logs</li> <li>94. Red Star activities</li> <li>95. Differentiation Options</li> <li>96. Technology : Assessment Management System Unit 12.</li> </ol>

<p>Mint crème.....\$2.79/lb  Fudge marshmallow.....\$1.69/ 12oz  Sugar wafers.....\$2.98/ 8oz  Vanilla wafers.....\$1.39/11oz  Chocolate chip.....\$2.39/12oz  Oatmeal.....\$2.03/17oz  Windmill.....\$2.59/lb  Ginger snaps.....\$0.60/8oz</p> <p>1.What 4 packages of cookies would you recommend they buy, so that they have a total of about 3 pounds, and they spend as little money as possible? Show all your work, and explain how you found your answer. <i>Hint 1 pound= 16 ounces</i></p> <p>2. If they follow your recommendations, how much money will they spend on cookies ? Show your work.</p> <p>3. About what is the cost per pound of the 3 pounds of cookies you selected? Show all your work.</p>	<p><i>See iTLG.</i></p>
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### UNIT LENGTH: 11-13 days

#### Unit 12: Rates

- 12.1 Students collect data on how many times classmates blink in one minute. They compare median blinking rates for students at rest and for students who are reading. Students list examples of rates. Students fill in missing fractions and decimals on number lines, Students practice and maintain skills through Math Boxes and Study Link activities. T. p.908 (Differentiation Options) -913.
- 12.2 Students use a version of the “What My Rule?” table, called a *rate table*, to solve rate problems. Students play the *Credit/ Debits Game* (Advanced Version) to practice adding and subtracting integers. Students practice and maintain skills through Math Boxes and Study Link activities. T. p 914(Differentiation Options) -919.
- 12.3 Students examine data on the estimated number of times and average person does something in his or her lifetime. They convert the rates to ones with smaller units of time that can be understood more easily. Students create and interpret a line graph. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 920(Differentiation Options) -925.
- 12.4 Students calculate the unit prices of various products. The calculate and compare the unit prices of two products to decide which is the better buy. Students play Name That Number to practice representing numbers in different ways. Students practice and maintain skills through Math Boxes and Study Link activities .T. p. 926(Differentiation Options)-930.
- 12.5 Students share unit-price label information they collected on visits to

supermarkets and use the information collected from supermarket ads to calculate unit prices. Students calculate unit prices involving fractions of cents. Students play Fraction Top-It to practice comparing and ordering fractions. Students practice and maintain skills through Math Boxes and Study Link activities .T. p. 931(Differentiation Options) -935.

12.6 Students reflect on and discuss their World Tour experiences. They take a 50-fact test and review individual and class progress. Student solve number stories involving rates. Students practice and maintain skills through Math Boxes and Study Link activities. T. p. 936 (Differentiation Options)-940.

12.7 Progress Check 12 is a cumulative assessment of concepts and skills taught in Unit 12 and in previous units. T. pg. 941-945.

## Strategies for the Gifted Student

Below is a partial list of strategies that can be used to challenge the gifted student.

1. Provide opportunities for critical and creative thinking, in-depth questioning and discussion
2. Enhance curriculum with complexity and depth of content in areas of student strength and interest
3. Provide opportunities for in-depth, real-world research to allow for discovery of solutions to real problems
4. Provide opportunities for students to choose options that match their learning styles/preferences and areas of interest for independent study (at an appropriately advanced level with adequate guidance and monitoring.)
5. Opportunities for students to learn and work with other students of similar ability, academic advancement and learning interests are *proactively* planned and are available on a regular basis through flexible cluster grouping, pull-out opportunities and/or enrichment activities/interest clubs.
6. Assess students' knowledge about a topic before beginning a new unit. (Pre-testing)
7. Tiered assignments as indicated by student need (i.e.: multiple assessments).
8. Encourage the use of advanced methodological skills – computer searches, survey techniques.
9. Provide students ample time to read a wide variety of literature, various genres.
10. Promote the use of reading journals to allow for individual contemplation of literature.
11. Expose students to new and challenging information about the environment and culture
12. Expose students to a variety of subject matter
13. Expose students to increasingly difficult vocabulary and concepts
14. Encourage students to pursue ideas as far as their interests take them.
15. Expose student to ideas at rates appropriate to the individual's learning pace and style

16. Provide students with short excerpts of literature to read and have them classify according to the genre
17. Present students with a piece of writing and have them transform it to another genre according to audience and purpose.
18. Create a full advertising campaign – students are to analyze and compare two television or magazine ads and then create an ad campaign of their own.
19. Author study – choose an author and investigate writing style, themes, etc. Explore the time period the author lived in and how events might have shaped writing.
20. Mystery- Read various Sherlock Holmes mysteries and do a character analysis; improve deductive and inference skills.
21. Explore poetic language – free verse. Focus on imagery, metaphoric language and point of view. Create group poems, individual poems. Experiment with different writing styles.
22. Students will read the poem *Jabberwocky* and give definitions for unusual words. Students are to state what type of word is being replaced (parts of speech). Replace author's words with own and rewrite the poem.
23. Create an epic monster poem
24. Explore various types of poetry and create poem book of personal writings
25. Write a poem and act it out in class
26. Visit poetry websites on-line
27. Explore the elements of fiction – ask students improvise and think divergently about the stories.
28. Biographical and Historical Fiction - re-imagine actual events from new, even unusual points of view. Explore different perspectives both critically and creatively.
29. Create a point of view. Choose a person (or animal or object) in a prominent person's life and describe an event from this perspective.
30. Research facts to inspire deeper research and a more critical analysis of issues that appear in stories.
31. Curriculum Compacting
32. 4 Mat Model
33. Curriculum Cubing...levels of thinking

## Accommodations for the Challenged Student

Below is a partial list of accommodations that can be used to encourage the challenged student to reach his/her potential.

1. Break assignment into segments of shorter tasks.
2. Use concrete examples of concepts before teaching the abstract.
3. Relate information to the student's experiential base.
4. Reduce the number of concepts presented at one time.
5. Provide an overview of the lesson before beginning.
6. Monitor the student's comprehension of language used during instruction.
7. Schedule frequent, short conferences with the student to check for comprehension.
8. Provide consistent review of any lesson before introducing new information.
9. Allow student to obtain and report information utilizing cassette recorders, dictation, typewriters/computers, interviewers, calculators, and fact sheets.
10. Highlight important concepts to be learned in text of material
11. Give additional presentations by varying the methods using repetition, simpler explanations, more examples and modeling.
12. Require verbal responses to indicate comprehension.
13. Give frequent reminders of homework assignments.
14. Provide clear, concise directions and concrete examples for homework assignments.
15. Assign tasks at an appropriate reading level.
16. Allow for the oral administration of tests if needed.
17. Give written directions to supplement verbal directions.
18. Slow the rate of presentations.
19. Paraphrase information.
20. Keep statements short and to the point.
21. Avoid use of abstract language such as metaphors, idioms, and puns.
22. Keep sentence structures simple.
23. Encourage feedback from student to check for understanding.
24. Familiarize student with any new vocabulary before beginning the lesson.
25. Alert student's attention before expressing key points.



26. Ensure the readability levels of the textbooks are commensurate with the student's language level.
27. Utilize visual aids such as charts and graphs.
28. Utilize manipulative, hands-on activities whenever possible.
29. Always demonstrate how new material relates to previously learned information.
30. Cue student by calling his/her name before asking questions.
31. Provide an established early routine.
32. Provide clear rules and consistently enforce them.
33. Contract with student and use rewards for completion of contract.
34. Check the student's notebook to insure the use of dividers, assignment sheet, and calendar.
35. Provide due date on written assignments.
36. Provide a specific place for turning in completed assignments.
37. Utilize cooperative learning strategies when appropriate.
38. Assign a peer helper to check understanding of directions
39. Assign a peer helper to read important directions and essential information.
40. Assign a peer helper to record material dictated by the student.
41. Establish relevancy and purpose for learning by relating to previous experiences.
42. Shape approximations for desired behavior by providing direct reinforcements such as praise or immediate feedback of correct answers.
43. Seat student close to teacher.
44. Make a positive, personal comment every time the student shows any evidence of interest.
45. Make frequent checks for assignment progress/completion.
46. Give advance warning of when transition is going to take place.
47. Use physical proximity and touch to help student refocus.
48. Use study carrels.
49. Use preferential seating.
50. Help keep student's work area free of unnecessary materials.
51. Use checklists to help the student get organized.
52. Frequently check the organization of the student's notebook.
53. Monitor the student's use of his/her assignment book.
54. Provide opportunities for movement.

55. Increase time allowed for completion of tests or assignments.
56. Reduce the amount of work or lengths of tests.
57. Prioritize assignments and/or steps to completing assignments for the student.
58. Space short work periods with breaks or change of tasks.
59. Make frequent checks for assignments progress/completion.
60. Make sure the appropriate books and materials are open to the correct pages.
61. Check on progress often in the first few minutes of work.
62. Provide time suggestions for each task.

## Modifications/Accommodations

### English Language Learners

#### ELL

**Instruction:** ELL students need modified instruction to learn both English and content. Modifying instruction doesn't mean creating a second lesson plan or `curriculum; it just means modifying your instruction.

- ❖ Simplify complex questions
- ❖ Use concrete language and questions
- ❖ Give simple instructions
- ❖ Write in print unless specifically teaching the alphabet
- ❖ Let students copy your notes or provide study guides
- ❖ Focus on 2-3 concepts of a lesson
- ❖ Emphasize the 5-8 most important vocabulary words of a lesson
- ❖ Repeat or rephrase often
- ❖ Use physical activity: model, role-play, or act out
- ❖ Utilize numerous visuals, such as graphic organizers and pictures
- ❖ Teach to varied learning styles
- ❖ Encourage students to participate in class discussions
- ❖ Have high expectations for students
- ❖ Provide wait time (15-20 seconds)
- ❖ Assign students to an English speaking study buddy
- ❖ Utilize cooperative learning groups
- ❖ Use children's literature/lower grade materials to teach content
- ❖ Incorporate the 4 skills of language acquisition:  
reading/writing/listening/speaking
- ❖ Check for understanding using "show me" techniques

**Class/Homework:** Modifying class work/homework tasks to fit ELL students' capabilities doesn't mean expecting less from them. It means giving them realistic tasks to complete that increase their chance for success.

- ❖ Reduce assignments
- ❖ Simplify complex tasks
- ❖ Provide extended time for class work and/or projects
- ❖ Adapt the task to the students' skill level
- ❖ Ignore spelling/grammar errors except for when explicitly taught

**Assessment Modifications:** Standardized tests or teacher-created tests can't always measure ELL students' progress accurately or authentically. Measure students by what they can do at any point in time, keeping in mind what they couldn't do earlier. Have they shown progress? Have they made an effort to learn?

- ❖ Test key concepts or main ideas
- ❖ Avoid test questions asking for discrete information
- ❖ Make a simplified language version of the test
- ❖ Simply instructions

- ❖ Provide word banks
- ❖ Extended time
- ❖ Give student objective tests: Matching, multiple choice, etc.
- ❖ Make all or part of the exam oral

### Alternate Assessment Strategies

#### Non-Verbal

- ❖ Physical demonstration (Point, gesture, act out, thumbs up/down, nod yes/no)
- ❖ Pictorial Products (manipulate or create drawings, diagrams, dioramas, models. graphs, charts; picture journal)
- ❖ KWL Charts Using pictures or native language

#### Oral and Written Strategies

- ❖ Interview, oral reports, role plays using visual cues, gestures or physical activity
- ❖ Describing, explaining, summarizing, retelling paraphrasing
- ❖ Thinking and learning logs
- ❖ Reading response logs
- ❖ Writing assignments
- ❖ Dialogue journals
- ❖ Audio or video recordings of students
- ❖ Portfolios

### Broad Classroom Strategies

- ❖ Create an environment where learners feel secure and are prepared to take risks
- ❖ Support and value learners' languages and cultures
- ❖ Build on the knowledge, skills and understandings that students bring to the learning context
- ❖ Build on the linguistic understandings students have of their own language
- ❖ Use themes and topics which are relevant to learners' particular needs
- ❖ Focus on purposeful communicative activities which are comprehensible and appropriate to the learner's age and needs
- ❖ Focus on developing learners' oral language skills for oral language development and to support writing
- ❖ Support the learners' language skills development through scaffolding the learners' language
- ❖ Explicitly teach new language (vocabulary, text types, grammar, sound knowledge, pronunciation, intonation) in the context of a theme or topic
- ❖ Use pair and group work and peer/cross age tutoring to maximize language interaction in a low stress environment and to encourage risk taking

- ❖ Jointly deconstruct and construct texts to model how texts work to achieve their purposes
- ❖ Use an experiential approach to provide meaningful contexts
- ❖ Use visual cues wherever necessary to clarify and reinforce concepts
- ❖ Use graphic organizers (diagrams, timelines, concept maps etc) to represent and organize ideas and to develop thinking skills
- ❖ Recycle language to ensure its learning
- ❖ Encourage older learners to keep a glossary or a personal dictionary of words and meanings
- ❖ Ensure that assessment tasks, activities and criteria are relevant to the student's stage of English language development

### **Teacher Talk**

- ❖ Keep talk to a minimum
- ❖ Use clear, common and consistent instructions and repeat or rephrase if necessary
- ❖ Speak at a normal pace and volume
- ❖ Don't use too much jargon
- ❖ Support instructions with visual cues as much as possible

**Teaching Reading:** Reading for the second language learner involves transferring skills from the first language (if he or she can read in the first language) to the second as well as becoming familiar with:

- ❖ New set of sounds and sound groupings which differ from the first language
- ❖ New intonation patterns and their meanings
- ❖ New patterns of stress and pause
- ❖ New sets of culturally-specific knowledge, values and behaviors
- ❖ New grammar conventions (different word order in sentences)
- ❖ New print conventions (reading from left to right)

**Choose Reading Materials** Use bi-lingual books, big books, and stories with lots of repetition, class made books based on class experiences

- ❖ Have good visual cues to enable the student to access the story easily
- ❖ Reflect the experiences, knowledge and interests of the learners
- ❖ Involve the ESL learner in a number of reading experiences every day which focus on language in context
- ❖ Exposure to meaningful print in the immediate environment (signs, charts, labels)

- ❖ Modelled deconstruction of a range of whole texts to develop understandings of the organization and language features of different genres and the conventions of English
- ❖ Taped reading
- ❖ Shared book experiences and big books
- ❖ Wordless books/ picture sequences/ photographs to build a story/recount
- ❖ Cloze activities to focus on comprehension or on different aspects of language
- ❖ Pre-reading activities which prepare the reader for the text through activating prior knowledge about the topic, developing a shared overall knowledge of what the text might be about and teaching strategies for predicting the text content
- ❖ Post reading activities which focus on responding to the text in order to gain a greater understanding of the text, extract information for other purposes, critically interpret and analyze the text and give personal responses to the text

**Teaching Writing:** ESL Learners are learning to write in a new language where he or she may have:

- ❖ No literacy skills in another language due to limited or no previous schooling
- ❖ Limited oracy skills in English
- ❖ Limited knowledge of the three cueing systems
- ❖ A lack of shared cultural knowledge
- ❖ A lack of understanding of the specific genres taught in schools and their particular social functions

#### **Teachers Can Scaffold Learner's Writing By**

- ❖ Modelling all aspects of the writing process
- ❖ Teaching the text organization and language features of different genres through a range of different activities
- ❖ Jointly constructing texts with students
- ❖ Supporting the development of editing and proof reading skills
- ❖ Using shared experiences to write class or individual books/texts
- ❖ Using photos and other visual stimuli in the early stages of writing

#### **Other Writing Strategies**

- ❖ Encourage students not to focus too much on their mistakes
- ❖ Encourage writing for real purposes by publishing in innovative ways such as newsletters on the school's internet
- ❖ Encourage the use of different strategies for accessing vocabulary needed and for recording new vocabulary for use in future writing
- ❖ Teach all aspects of word knowledge and spelling through specific activities including games, quizzes etc.