Fraser Grade 4 Mathematics Competency Analysis

In **Grade 4**, instructional time should focus on **three critical areas**:
(1) developing understanding and **fluency** with **multi-digit multiplication**, and developing understanding of **dividing** to find quotients involving **multi-digit dividends**;
(2) developing an understanding of **fraction equivalence**, **addition and subtraction of fractions** with **like denominators**, and **multiplication of fractions** by **whole numbers**;
(3) understanding that **geometric figures** can be analyzed and classified based on their **properties**, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.
(CCSS-Mathematics Grade 4 Introduction)

Fraser K-8 Mathematics Competency Statements are written for each CCSS-M Cluster (SBAC Target).

K-8 Mathematics Competency Organization

	Critical Area
	CCSS-M Domain
	CCSS-M Cluster / SBAC Target
	SBAC Achievement Level 3 Descriptor
	Sub-Competency Statements
	Marzano Scales (2.0 and 3.0)
	Mathematics Standards (CCSS-M)
	Fraser Unit Sub-Competencies
	Additional Notes

Standards supporting **Content** Competencies Statements *Declarative Knowledge*	Standards supporting **Skills/Application** Competency Statements *Procedural Knowledge*	Standards supporting **Concept** Competency Statement *Conceptual Knowledge*
Critical Area 1 – Developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends		*Students will demonstrate*
Operations and Algebraic Thinking (OA)		
	4.OA.A Competency Statement ***Students will use the four operations with whole numbers to solve problems.*** (A) Use the four operations (add, subtract, multiply, and divide) to solve one-step problems involving equal groups and arrays, including problems where the remainder must be interpreted. They should be able to find an unknown number and represent problems using equations with a symbol representing the unknown quantity.	Representation
Multiplication and Division (4 – 411) (OA) **2.0 The student will recognize or recall specific vocabulary, such as:** • Additive, array, calculation, comparison, digit, distinguish, divide, dividend, division, divisor, equation, illustrate, interpret, model, multiplication, multiplicative, multiply, number, operation, place value, property, remainder, represent, quotient, strategy, symbol, unknown, verbal, whole number, word problem **The student will perform basic processes, such as:** • Interpret a multiplication equation as a comparison (4.OA.A.1) • Represent verbal statements of multiplicative comparisons as multiplication equations (4.OA.A.1) • Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit whole numbers (4.NBT.B.5) • Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors (4.NBT.B.6) • Use arrays and/or models to solve multiplication and division problems	**Multiplication and Division (4 – 411) (OA)** **3.0 The student will:** • Multiply or divide to solve word problems involving multiplicative comparisons (for example, by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison) (4.OA.A.2) • Solve multistep word problems posed with whole numbers and having whole number answers using the four operations, including division word problems in which remainders must be interpreted (4.OA.A.3) • Illustrate and explain calculations using strategies based on place value, properties of operations, equations, and/or models (4.NBT.B.5)	

Expressions and Equations (4 – 419) (OA) **2.0 The student will recognize or recall specific vocabulary, such as:** • Equation, number, operation, quantity, represent, symbol, unknown, whole number, word problem **The student will perform basic processes, such as:** • Represent word problems using equations with a letter standing for the unknown quantity (4.OA.A.3)	**Expressions and Equations (4 – 419) (OA)** **3.0 The student will:** • Solve multistep word problems involving the four operations posed with whole numbers with a symbol for the unknown number (4.OA.A.3)	
4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	**4.OA.A.2** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[1] **4.OA.A.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.NBT.B.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.NBT.B.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.		
Fraser Unit Subcompetencies	**Fraser Unit Subcompetencies**	

4.OA.B Competency Statement ***Students will gain familiarity with <u>factors</u> and <u>multiples</u>.*** (B) Find all **factor pairs** for whole numbers in the range of 1–100 and determine whether a given whole number in the range of 1–100 is **prime or composite**.		
Factors and Multiples (4 – 421) (OA) **2.0 The student will recognize or recall specific vocabulary, such as:** • Composite, digit, factor pair, multiple, number, prime, whole number **The student will perform basic processes, such as:** • Find all factor pairs for a whole number in the range one to 100 (4.OA.B.4)	**Factors and Multiples (4 – 421) (OA)** **3.0 The student will:** • Determine whether a given whole number in the range one to 100 is prime or composite (4.OA.B.4) • Determine whether a given whole number in the range one to 100 is a multiple of a given one-digit number (4.OA.B.4)	
<u>4.OA.B.4</u> 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.C Competency Statement ***Students will generate and analyze <u>patterns</u>.*** (C) Analyze a pattern for apparent features that are not explicit in the rule itself.	Patterns
Patterns (4 - 423) (OA) **2.0 The student will recognize or recall specific vocabulary, such as:** • Number, pattern, rule, shape **The student will perform basic processes, such as:** • Generate a number or shape pattern that follows a given rule (4.OA.C.5)	**Patterns (4 - 423) (OA)** **3.0 The student will:** • Describe the features of a number or shape pattern including those that are not explicit in the rule itself (4.OA.C.5)	
	<u>4.OA.C.5</u> 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.*	

		Students will demonstrate
Number and Operations – Base Ten Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.		
4.NBT.A Competency Statement *Students will generalize place value understanding for multi-digit whole numbers.* (D) Look for and use repeated reasoning **to generalize place value understanding** to be able to **read and write multi-digit whole numbers** less than or equal to 1,000,000 using base-ten numerals, number names, and expanded form; compare multi-digit numbers up to 1,000,000 using <, >, and =; **round** multi-digit whole numbers up to 1,000,000 to any place; and 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.		Systems – place value Representation
Place Value (4 – 375) (NQ) **2.0 The student will recognize or recall specific vocabulary, such as**: • Base-ten numeral, compare, digit, expanded form, multi-digit number, number name, place, place value, round, whole number **The student will perform basic processes, such as:** • 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 (4.NBT.A.1) • Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form (4.NBT.A.2)	**Place Value (4 – 375) (NQ)** **3.0 The student will:** • Compare two multi-digit numbers based on meanings of the digits in each place using , and = (4.NBT.A.2) • Use place value understanding to round multi-digit whole numbers to any place (4.NBT.A.3)	
4.NBT.A.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division*. **4.NBT.A.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.A.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.A.3** Use place value understanding to round multi-digit whole numbers to any place.	

	4.NBT.B Competency Statement *Students will use <u>place value</u> understanding and <u>properties of operations</u> to perform multi-digit arithmetic.* (E) **Fluently add and subtract** multi-digit whole numbers using the standard algorithm; **multiply whole numbers** including two digits by two digits based on place value and properties of operations; find **whole-number quotients and remainders** with up to four-digit dividends and one-digit divisors using strategies based on place value understanding, the properties of operations, and/or the relationship between multiplication and division; and **explain multiplication and division** using equations, arrays, and/or area models.	
Addition and Subtraction (4 – 403) (OA) **2.0 The student will recognize or recall specific vocabulary, such as:** • Add, algorithm, digit, model, subtract, whole number **The student will perform basic processes, such as:** • Add and subtract multi-digit whole numbers using concrete models or drawings	**Addition and Subtraction (4 – 403) (OA)** **3.0 The student will:** • Fluently add and subtract multi-digit whole numbers using the standard algorithm (4.NBT.B.4) **Required Fluency for Grade 4** **4.NBT.B.4 Add/subtract within 1,000,000.**	
Multiplication and Division (4 – 411) (OA) **2.0 The student will recognize or recall specific vocabulary, such as:** • Additive, array, calculation, comparison, digit, distinguish, divide, dividend, division, divisor, equation, illustrate, interpret, model, multiplication, multiplicative, multiply, number, operation, place value, property, remainder, represent, quotient, strategy, symbol, unknown, verbal, whole number, word problem **The student will perform basic processes, such as:** • Interpret a multiplication equation as a comparison (4.OA.A.1) • Represent verbal statements of multiplicative comparisons as multiplication equations (4.OA.A.1) • Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit whole numbers (4.NBT.B.5) • Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors (4.NBT.B.6) • Use arrays and/or models to solve multiplication and division problems	**Multiplication and Division (4 – 411) (OA)** **3.0 The student will:** • Multiply or divide to solve word problems involving multiplicative comparisons (for example, by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison) (4.OA.A.2) • Solve multistep word problems posed with whole numbers and having whole number answers using the four operations, including division word problems in which remainders must be interpreted (4.OA.A.3) • Illustrate and explain calculations using strategies based on place value, properties of operations, equations, and/or models (4.NBT.B.5)	

4.NBT.B.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.NBT.B.4** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **4.NBT.B.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.A.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	**4.OA.A.2** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[1] **4.OA.A.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.	
Critical Area 2 – Developing understanding of fraction equivalence, addition and subtraction of fractions with like denominators, multiplication of fractions by whole numbers		*Students will demonstrate*
Number and Operations – Fractions (NF)		
	4.NF.A Competency Statement *Students will extend understanding of fraction equivalence and ordering.* (F) Extend understanding to **compare two fractions** with different numerators and different denominators using **<, >, and =** by creating **common denominators** or numerators and recognize and **generate equivalent fractions** using visual models.	Equivalence

Fractions (4 – 381) (NQ) **2.0 The student will recognize or recall specific vocabulary, such as:** • Compare, comparison, denominator, equivalent, fraction, generate, justify, numerator **The student will perform basic processes, such as:** • Recognize and generate equivalent fractions (4.NF.A.1)	**Fractions (4 – 381) (NQ)** **3.0 The student will:** • Compare two fractions with different numerators and different denominators using , and =, and justify the comparison (4.NF.A.2)	
<u>4.NF.A.1</u> Explain why a fraction *a*/*b* is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	<u>4.NF.A.2</u> Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	
	4.NF.B Competency Statement *Students will <u>build fractions</u> from unit fractions by applying and extending previous understandings of operations on whole numbers.* (G) Identify and generate **equivalent forms** of a **fraction** including mixed numbers with like denominators and solve one-step problems involving **multiplication of a fraction by a whole number.**	
	4.NF.C Competency Statement *Students will understand <u>decimal notation for fractions</u>, and <u>compare</u> decimal fractions.* (H) **Add two fractions** with respective denominators 10 and 100 by first **converting to** two fractions with **like denominators**; **compare two decimals** to the hundredths using >, <, =, or on a number line; and compare decimals by reasoning about their size.	

Adding and Subtracting Fractions (4 – 384) (NQ) **2.0 The student will recognize or recall specific vocabulary, such as:** • Add, addition, decompose, denominator, equivalent, express, fraction, join, mixed number, part, refer, separate, subtract, subtraction, sum, whole, word problem **The student will perform basic processes, such as:** • Describe addition and subtraction of fractions as joining and separating parts referring to the same whole (4.NF.B.3a) • Decompose a fraction into a sum of fractions with the same denominator in a variety of ways (for example, 3/8 = 1/8 + 1/8 + 1/8) (4.NF.B.3b) • Express a fraction with denominator 10 as an equivalent fraction with denominator 100 (4.NF.C.5)	**Adding and Subtracting Fractions (4 – 384) (NQ)** **3.0 The student will:** • Add and subtract mixed numbers with like denominators (4.NF.B.3c) • Solve word problems involving addition and subtraction of fractions referring to the same whole and having the same denominator (4.NF.B.3d) • Add two fractions with denominators 10 and 100 by making the denominators equivalent (4.NF.C.5)	
Multiplying and Dividing Fractions (4 – 387) (NQ) **2.0 The student will recognize or recall specific vocabulary, such as:** • Equation, fraction, model, multiple, multiplication, multiply, whole number, word problem **The student will perform basic processes, such as:** • Describe a fraction a/b as a multiple of 1/b (4.NF.B.4a) • Multiply a fraction by a whole number using the understanding that a multiple of a/b is a multiple of 1/b (4.NF.B.4b)	**Multiplying and Dividing Fractions (4 – 387) (NQ)** **3.0 The student will:** • Solve word problems involving the multiplication of a fraction by a whole number using fraction models and equations (4.NF.B.4c)	
Decimal Concepts (4 – 389) (NQ) **2.0 The student will recognize or recall specific vocabulary, such as:** • Compare, comparison, decimal, denominator, fraction, hundredth, justify, notation **The student will perform basic processes, such as:** • Use decimal notation for fractions with denominators of 10 or 100 (4.NF.C.6)	**Decimal Concepts (4 – 389) (NQ)** **3.0 The student will:** • Compare and justify the comparison of two decimals to hundredths (4.NF.C.7)	
4.NF.B.3 Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*. **4.NF.B.3.A** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. **4.NF.B.3.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. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.* **4.NF.B.4**	**4.NF.B.3** Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*. **4.NF.B.3.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. **4.NF.B.3.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.	

Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. **4.NF.B.4.A** Understand a fraction *a/b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* **4.NF.B.4.B** Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*	**4.NF.B.4** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. **4.NF.B.4.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. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	
4.NF.C.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.[2]*For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.* **4.NF.C.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.NF.C.7** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	**4.NF.C.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.[2]*For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.* **4.NF.C.7** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	
		Students will demonstrate
Measurement and Data (MD)		
4.MD.A Competency Statement *Students will solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.* (I) Use the **four operations** to solve 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		Relationships Equivalence

diagrams such as number line diagrams that feature a measurement scale; and apply the **area formula** to rectangles in mathematical problems.		
Area (4 – 473) (G) **2.0 The student will recognize or recall specific vocabulary, such as:** • Area, formula, mathematical, real world, rectangle, word problem **The student will perform basic processes, such as:** • Apply the area formula for rectangles in mathematical problems (4.MD.A.3)	**Area (4 – 473) (G)** **3.0 The student will:** • Apply the area formula for rectangles in real-world and word problems (4.MD.A.3)	
Perimeter (4 – 475) (MDSP) **2.0 The student will recognize or recall specific vocabulary, such as:** • Formula, mathematical, perimeter, real world, rectangle, word problem **The student will perform basic processes, such as:** • Apply the perimeter formula for rectangles in mathematical problems (4.MD.A.3)	**Perimeter (4 – 475) (MDSP)** **3.0 The student will:** • Apply the perimeter formula for rectangles in real-world and word problems (4.MD.A.3)	
Measurement (4 -504) (MDSP) **2.0 The student will recognize or recall specific vocabulary, such as:** • Centimeter, decimal, distance, express, fraction, gram, hour, interval, kilogram, kilometer, liquid, liter, mass, measurement, meter, milliliter, minute, money, operation, ounce, pound, second, time, unit, volume, word problem **The student will perform basic processes, such as:** • Express measurements in a larger unit in terms of a smaller unit (for example, km, m, cm, kg, g, lb, oz, l, ml, hr, min, sec) (4.MD.A.1)	**Measurement (4 -504) (MDSP)** **3.0 The student will:** • Use the four operations to solve word problems involving distance, intervals of time, liquid volumes, masses of objects, and money, including problems that involve simple fractions or decimals and problems that require expressing measurements given in a larger unit in terms of a smaller unit (4.MD.A.2)	
4.MD.A.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.A.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.A.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.B Competency Statement ***Students will represent and interpret data.*** (J) Create a **line plot** to **represent** a **data** set using fractions 1/2, 1/4, and 1/8 and interpret data from a line plot to solve problems involving **addition and subtraction of fractions with like denominators**.	
Represent and Interpret Data (4 – 510) (MDSP) **2.0 The student will recognize or recall specific vocabulary, such as:** • Data, fraction, line plot, measurement, unit **The student will perform basic processes, such as:** • Make a line plot of measurement data in fractions of a unit (1/2, 1/4, 1/8) (4.MD.B.4)	**Represent and Interpret Data (4 – 510) (MDSP)** **3.0 The student will:** • Solve problems using a line plot of measurement data in fractions of a unit (1/2, 1/4, 1/8) (4.MD.B.4)	
	4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	
	4.MD.C Competency Statement ***Students will understand concepts of angle and measure angles. (Geometric Measure)*** (K) **Construct angles** in whole-number degrees using a protractor, use understanding of angle concepts to **decompose a larger angle** with two or more smaller angles that have the same sum as the original, and determine an unknown **angle measure** in a diagram.	

Angles (4 – 487) (G) **2.0 The student will recognize or recall specific vocabulary, such as:** • Addition, angle, degree, diagram, measure, protractor, subtraction, unknown, whole number (4.MD.C.5; 4.MD.C.5a; 4.MD.C.5b) **The student will perform basic processes, such as:** • Measure angles in whole number degrees using a protractor (4.MD.C.6)	**Angles (4 – 487) (G)** **3.0 The student will:** • Solve addition and subtraction problems to find unknown angles on a diagram (4.MD.C.7)	
4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: **4.MD.C.5.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 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. **4.MD.C.5.B** An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees. **4.MD.C.6** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	**4.MD.C.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.	
Critical Area 3 – Understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry		
Geometry (G)		
4.G.A Competency Statement ***Students will draw and identify <u>lines</u> and <u>angles</u>, and <u>classify shapes</u> by properties of their lines and angles.*** (L) Draw **lines of symmetry** for two-dimensional figures, **classify** two-dimensional figures based on parallel or perpendicular lines or angles of specified lines, and recognize **right triangles** as a category.		

Shapes (4 – 458) (G) **2.0 The student will recognize or recall specific vocabulary, such as:** • Absence, angle, classify, line, parallel, perpendicular, presence, right triangle, shape, size **The student will perform basic processes, such as:** • Identify right triangles (4.G.A.2)	**Shapes (4 – 458) (G)** **3.0 The student will:** • Classify shapes based on the presence or absence of parallel or perpendicular lines (4.G.A.2) • Classify shapes based on the presence or absence of angles of a specified size (4.G.A.2)	
Lines and Symmetry (4 – 467) (G) **2.0 The student will recognize or recall specific vocabulary, such as:** • Angle, example, figure, line, line segment, line-symmetric, parallel, perpendicular, point, ray, symmetry, two dimensional **The student will perform basic processes, such as:** • Identify examples of points, lines, line segments, rays, angles, and perpendicular and parallel lines in two-dimensional figures (4.G.A.1) • Identify line-symmetric figures (4.G.A.3)	**Lines and Symmetry (4 – 467) (G)** **3.0 The student will:** • Draw points, lines, line segments, rays, angles, and perpendicular and parallel lines (4.G.A.1) • Draw all possible lines of symmetry in two-dimensional figures (4.G.A.3)	
	4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **4.G.A.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.A.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.	