Connecticut Mathematics Model Curricula Alignment

Resource Name:

AF Math powered by Leap Educational Consulting

Alignment Grade 5			
Model Unit Name	**Model Unit Standards**	**Resource Unit(s) Number and Resources Lessons**	**Pacing**
This is the title of the unit in the model curricula	*These are the standards addressed in the unit*	*This is the unit(s) that aligns with the model unit from the resource* *These are the lessons from the identified units that align to the standards within the model unit*	*This is the expected number of days for instruction*
Area/Coordinate Grid	5.G.A.1, 5.G.A.2	**Unit 11: Coordinate Geometry:** ● Lesson 1: SWBAT construct a coordinate plane and use it to locate points. (5.G.A.2) ● Lesson 2: SWBAT plot and locate points on a coordinate plane. SWBAT explain that the x- and y-coordinates indicate how far to travel from the origin in the direction of the corresponding axis. (5.G.A.1) ● Lesson 3: SWBAT identify patterns in coordinate pairs that lead to vertical and horizontal lines, and interpret points on the plane as distances from the axes. SWBAT construct parallel and perpendicular lines using coordinates in the coordinate grid. (5.G.A.2) ● Lesson 4: SWBAT use ordered pairs to construct and name shapes on the coordinate grid. (5.G.A.1, 5.G.A.2) ● Lesson 5: SWBAT interpret an ordered pair in the coordinate system coordinate to solve real-world problems. (5.G.A.2) ● Lesson 5, Day 2: Error analysis reteach lesson: SWBAT interpret an ordered pair in the coordinate system coordinate to solve real-world problems. (5.G.A.2)	6 days
Whole Number Multiplication/Volume	5.NBT.B.5, 5.MD.C.3, 5.MD.C.4, 5.MD.C.5	**Unit 3: Whole Number Multiplication:** ● Lesson 3: SWBAT estimate products by rounding to the largest place value or using compatible numbers (up to 3 by 2 digit). (5.NBT.B.5)	21 days

		• Lesson 4: SWBAT to multiply 2 by 1 and 3 by 1-digit numbers using and connecting the distributive property to partial products of the standard algorithm. (5.NBT.B.5) • Lesson 5: SWBAT multiply 2 by 2-digit numbers using and connecting the distributive property to partial products of the standard algorithm. (5.NBT.B.5) • Lesson 6: SWBAT multiply 3 by 3 and 4 by 3-digit numbers using and connecting the distributive property to partial products of the standard algorithm. (5.NBT.B.5) • Lesson 7: SWBAT multiply 2 by 2 and 3 by 2-digit numbers using the standard algorithm and use estimation to check for reasonableness of the product. (5.NBT.B.5) • Lesson 8: SWBAT multiply 3 by 3-digit numbers using the standard algorithm and use estimation to check for reasonableness of the product. (5.NBT.B.5) • Lesson 8, Day 2: Error analysis reteach lesson: SWBAT multiply 3 by 3-digit numbers using the standard algorithm and use estimation to check for reasonableness of the product. (5.NBT.B.5) • Lesson 9: SWBAT solve two-step word problems involving addition, subtraction, and multiplication. (5.NBT.B.5) • Lesson 10: SWBAT solve multi-step word problems involving addition, subtraction and multiplication using bar models and/or equations to represent the given information. (5.NBT.B.5) **Unit 6: Volume:** • Lesson 1: SWBAT define volume by contrasting properties of 2D and 3D figures. SWBAT understand that volume is a property measured in cubic units. (5.MD.C.3) • Lesson 2: SWBAT explore volume by building 3D figures and counting unit cubes. (5.MD.C.3, 5.MD.C.4) • Lesson 2, Day 2: Error analysis reteach lesson: SWBAT find the volume of figures by counting unit cubes. (5.MD.C.3, 5.MD.C.4) • Lesson 3: SWBAT find the volume of a rectangular prism by composing and decomposing right rectangular prisms using layers. (5.MD.C.3, 5.MD.C.4) • Lesson 4: SWBAT find the volume of a rectangular prism by composing and decomposing right rectangular prisms using layers from different perspectives. (5.MD.C.5) • Lesson 5: SWBAT develop, explain and apply the formulas for finding the volume of right rectangular prisms. (5.MD.C.5) • Lesson 6: SWBAT use volume formulas to solve real world and mathematical problems where a dimension is unknown. (5.MD.C.5) • Lesson 7: SWBAT understand that volume is additive. SWBAT find the volume of a solid composed of two non-overlapping right rectangular prisms when length, width, and height are given. (5.MD.C.5) • Lesson 8: SWBAT use properties of rectangular prisms to determine the dimensions of two non-overlapping prisms. (5.MD.C.5) • Lesson 8, Day 2: Error analysis reteach lesson: SWBAT use properties of rectangular prisms to determine the dimensions of two non-overlapping prisms. (5.MD.C.5)	

		- Lesson 9: SWBAT find the volume of a solid composed of two non-overlapping right rectangular prisms. (5.MD.C.5) - Lesson 10: SWBAT apply concepts of volume to solve real world multi-step problems involving volume. (5.MD.C.5)	
Whole Number Division and Fractions as Division	5.NBT.6, 5.NF.B.3	**Unit 4: Whole Number Division:** - Lesson 2: SWBAT estimate quotients by rounding to compatible numbers. SWBAT determine which estimation strategy yields a more appropriate estimate given the problem context – highest place value strategy or using compatible numbers. (5.NBT.6) - Lesson 2, Day 2: Error analysis reteach lesson: SWBAT estimate quotients by rounding to compatible numbers. SWBAT determine which rounded values yields a more appropriate estimate. (5.NBT.6) - Lesson 3: SWBAT divide two- and three-digit dividends by multiples of 10 with single-digit quotients and make connections to a written method. (5.NBT.6) - Lesson 4: SWBAT divide two-digit dividends by two-digit divisors with single-digit quotients and make connections to a written method. (5.NBT.6) - Lesson 5: SWBAT interpret a remainder in the context of a real-world problem. SWBAT divide two- and three-digit dividends by two-digit divisors with single-digit quotients and make connections to a written method. (5.NBT.6) - Lesson 6: SWBAT divide three- and four-digit dividends by two-digit divisors resulting in two- and three-digit quotients, reasoning about the decomposition of successive remainders in each place value (students use partial quotients; some students may be pushed to use the standard method to record]. (5.NBT.6) - Lesson 6, Day 2: Error analysis reteach lesson: SWBAT divide three- and four-digit dividends by two-digit divisors resulting in two- and three-digit quotients, reasoning about the decomposition of successive remainders in each place value (students use partial quotients; some students may be pushed to use the standard method to record]. (5.NBT.6) - Lesson 7: SWBAT divide three- and four-digit dividends by two-digit divisors resulting in two- and three-digit quotients, reasoning about the decomposition of successive remainders in each place value. (5.NBT.6) - Lesson 8: SWBAT solve real world and mathematical problems involving all operations. SWBAT interpret remainders in the context of a real-world problem. (5.NBT.6) - Lesson 8, Day 2: Error analysis reteach lesson: SWBAT interpret remainders in the context of a real-world problem. (5.NBT.6) **Unit 8: Multiplying Fractions and Decimals:** - Lesson 1: SWBAT interpret a fraction as division by modeling division problems leading to answers in the form of a fraction or mixed number and making connections to an equation. (5.NF.B.3) - Lesson 2: SWBAT use tape diagrams to represent fractions as division and interpret quotients. (5.NF.B.3)	13 lessons

		• Lesson 3: SWBAT relate fractions as division to fractions of a set using counters and arrays (pictorial tape diagrams). (5.NF.B.3)* *This lesson also addresses standard 5.NF.4.	
Add and Subtract Fractions/Line Plots	5.NF.A.1, 5.NF.A.2, 5.MD.B.2	**Unit 7: Adding and Subtracting Decimal Fractions:** • Lesson 4: SWBAT round fractions to benchmark fractions (0, ½, 1) to estimate sums and differences of fractions with unlike denominators. (5.NF.A.1, 5.NF.A.2) • Lesson 4, Day 2: Error analysis reteach lesson: SWBAT round fractions to benchmark fractions (0, ½, 1) or compatible numbers to estimate sums and differences of fractions with unlike denominators. (5.NF.A.1, 5.NF.A.2) • Lesson 5: SWBAT add fractions with like units when regrouping is required and express answers as mixed numbers in simplest form. (5.NF.A.1) • Lesson 6: WBAT Subtract fractions and mixed numbers from whole numbers by regrouping and renaming wholes as fractions with the same denominator. (5.NF.A.1) • Lesson 7: SWBAT subtract fractions and mixed numbers with like denominators by regrouping when necessary. (5.NF.A.1, 5.NF.A.2) • Lesson 8: SWBAT add and subtract fractions with unlike denominators by creating equivalent fractions with common denominators. (5.NF.A.1, 5.NF.A.2) • Lesson 9: SWBAT add and subtract fractions (including work with fractions greater than one) with unlike denominators by creating equivalent fractions with common denominators. (5.NF.A.1, 5.NF.A.2) • Lesson 9, Day 2: Error analysis reteach lesson: SWBAT add and subtract fractions and mixed numbers with unlike denominators by creating equivalent fractions with common denominators. (5.NF.A.1, 5.NF.A.2) • Lesson 10: SWBAT add mixed numbers, whole numbers and improper fractions with unlike denominators with regrouping. (5.NF.A.1, 5.NF.A.2) • Lesson 11: SWBAT subtract fractions and mixed numbers with unlike denominators (with regrouping). (5.NF.A.1, 5.NF.A.2) • Lesson 11, Day 2: Error analysis reteach lesson: SWBAT subtract fractions and mixed numbers with unlike denominators (with regrouping). (5.NF.A.1, 5.NF.A.2) • Lesson 12: SWBAT solve real world addition and subtraction problems with fractions. (5.NF.A.1, 5.NF.A.2) • Lesson 13: SWBAT solve multi-step word problems involving add and subtracting mixed numbers and fractions by drawing a visual model and writing an equation. (5.NF.A.1, 5.NF.A.2) • Lesson 14: SWBAT read and understand data represented in line plots, and draw simple conclusions from the data. (5.MD.B.2) • Lesson 14, Day 2: Error analysis reteach lesson: SWBAT read and understand data represented in line plots, and draw simple conclusions from the data. (5.MD.B.2) • Lesson 15: SWBAT create line plots from data in a frequency table and solve problems involving information from the data. (5.MD.B.2)	16 lessons

Understanding the Place Value System and Add and Subtract Decimals	5.NBT.A.1, 5.NBT.A.2, 5.NBT.A.3, 5.NBT.A.4, 5.NBT.B.7	**Unit 1: Place Value Understanding:** ● Lesson 1: SWBAT read and write whole numbers in different forms (standard, expanded, and word). (5.NBT.A.1) ● Lesson 2: SWBAT understand the base 10 structure of the place value system by comparing the value of a digit in one place to its value in another. (5.NBT.A.1) ● Lesson 3: SWBAT identify and explain place value patterns when multiplying by 10s (whole numbers). (5.NBT.A.1) ● Lesson 4: SWBAT record powers of 10 in exponent form. SWBAT multiply by powers of 10 in exponent form. (5.NBT.A.2) ● Lesson 4, Day 2: Error analysis reteach lesson: SWBAT record powers of 10 in exponent form. SWBAT multiply by powers of 10 in exponent form. (5.NBT.A.2) ● Lesson 5: SWBAT identify and explain place value patterns when dividing by powers of 10 (whole numbers). (5.NBT.A.1) ● Lesson 6: SWBAT understand decimal place values to thousandths in order to read and write decimal numbers. (5.NBT.A.1, 5.NBT.A.3) ● Lesson 6, Day 2: Error analysis reteach lesson: SWBAT understand decimal place values to thousandths in order to read and write decimal numbers. (5.NBT.A.1, 5.NBT.A.3) ● Lesson 7: SWBAT express decimal fractions in expanded form and move fluidly between forms. (5.NBT.A.3) ● Lesson 8: SWBAT explain the effect of multiplying or dividing by powers of ten on the location of digits in a number. (5.NBT.A.2) ● Lesson 8, Day 2: Error analysis reteach lesson: SWBAT explain the effect of multiplying or dividing by powers of ten on the location of digits in a number. (5.NBT.A.2) ● Lesson 9: SWBAT compare and order two or more decimals to the thousandths by rewriting decimal numbers with a common place value. (5.NBT.A.3) ● Lesson 9, Day 2: Error analysis reteach lesson: SWBAT compare and order two or more decimals to the thousandths by rewriting decimal numbers with a common place value. (5.NBT.A.3) ● Lesson 10: SWBAT round decimal numbers to the thousandths using place value understanding and a number line. (5.NBT.A.4) ● Lesson 10, Day 2: Error analysis reteach lesson: SWBAT round decimal numbers to the thousandths using place value understanding. (5.NBT.A.4) **Unit 2: Fraction Primer:** ● Optional lesson: SWBAT identify and generate equivalent fractions and decimal fractions (includes fractions <, >, and = to one). (5.NBT.A.3)* ● Lesson 6: SWBAT generate equivalent fractions and decimals using numerical methods (includes fractions <, >, and = to one). (5.NBT.A.3)* **Unit 4: Whole Number Division:** ● Lesson 1: SWBAT estimate quotients by rounding to the highest place value and using ‘divide by 10 patterns’ for multi-digit division. (5.NBT.A.2)	40 lessons

Unit 7: Adding and Subtracting Decimal Fractions:

- Lesson 1: SWBAT add and subtract decimal fractions to the hundredths using visual models. (5.NBT.B.7)
- Lesson 2: SWBAT estimate sums and differences of decimal numbers by rounding to compatible numbers (whole numbers or halves) and use estimates to gauge the reasonableness of provided answers. (5.NBT.B.7)
- Lesson 3: SWBAT add and subtract decimal fractions to the hundredths using methods based on place value (like units concept). (5.NBT.B.7)
- Lesson 3, Day 2: Error analysis reteach lesson: SWBAT add and subtract decimal fractions to the hundredths using methods based on place value (like units concept). (5.NBT.B.7)

Unit 8: Multiplying Fractions and Decimals:

- Lesson 13: SWBAT consider multiplication as scaling by explaining the effects of multiplying by decimal fractions less than one, equal to one, and greater than one. (5.NBT.B.7)
- Lesson 14: SWBAT relate decimal and fraction multiplication using decimals/fractions equivalents and finding the product using area models and/or standard written methods for multiplying fractions. (5.NBT.B.7)**
- Lesson 15: SWBAT generalize and apply a rule for determining the location of the decimal point when using the standard algorithm (by analyzing patterns when using fraction form). (5.NBT.B.7)
- Lesson 16: SWBAT multiply decimal fractions using the standard algorithm. SWBAT estimate products and reason about the location of the decimal point in a product using estimation. (5.NBT.B.7)
- Lesson 17: SWBAT solve real-world problems by multiplying decimal fractions. SWBAT use estimation to gauge the reasonableness of products. (5.NBT.B.7)
- Lesson 17, Day 2: Error analysis reteach lesson: SWBAT solve real-world problems by multiplying decimal fractions. SWBAT use estimation to gauge the reasonableness of products. (5.NBT.B.7)
- Lesson 18: SWBAT solve word problems using fractions and decimal fraction multiplication by drawing a visual model and/or writing an equation. (5.NBT.B.7)***
- Optional lesson: SWBAT solve multi-step problems involving decimal fractions (focus on converting between units). (5.NBT.B.7)****

Unit 9: Dividing Fractions and Decimals:

- Lesson 6: SWBAT divide whole numbers and decimals by 0.1 and 0.01 by making a connection to division by a unit fraction. (5.NBT.B.7)
- Lesson 6, Day 2: Error analysis reteach lesson: SWBAT divide whole numbers and decimals by 0.1 and 0.01 by making a connection to division by a unit fraction. (5.NBT.B.7)
- Lesson 7: SWBAT Estimate quotients by rounding to the highest place or compatible numbers. (5.NBT.B.7)

		• Lesson 8: SWBAT express remainders in quotients as decimals and fractions and interpret them in the context of the problem. (5.NBT.B.7) • Lesson 8, Day 2: Error analysis reteach lesson: SWBAT express remainders in quotients as decimals and fractions and interpret them in the context of the problem. (5.NBT.B.7) • Lesson 9: SWBAT Divide a decimal number by a whole number resulting in a decimal quotient (standard algorithm). (5.NBT.B.7) • Lesson 10: SWBAT divide a whole number by a decimal by creating equivalent fractions with whole number denominators. (5.NBT.B.7) • Lesson 11: SWBAT divide a decimal by a decimal number by creating an equivalent division expression with a whole number divisor. (5.NBT.B.7) • Lesson 11, Day 2: Error analysis reteach lesson: SWBAT divide a decimal by a decimal number by creating an equivalent division expression with a whole number divisor. (5.NBT.B.7) • Lesson 12: SWBAT solve multi-step problems involving all operations with decimal numbers. (5.NBT.B.7)**** *These lessons also address remedial standard 4.NF.6. **This lesson also addresses standard 5.NF.4. ***This lesson also addresses standard 5.NF.6. ****These lessons also address standard 5.MD.1	
Making Sense of Multiplication of Fractions	5.NF.B.4, 5.NF.B.5, 5.NF.B.6	**Unit 8: Multiplying Fractions and Decimals:** • Lesson 3: SWBAT relate fractions as division to fractions of a set using counters and arrays (pictorial tape diagrams). (5.NF.B.4)* • Lesson 4: SWBAT find a fraction of any whole number using tape diagrams. (5.NF.B.4) • Lesson 5: SWBAT multiply a whole number and fraction using a numerical method. (5.NF.B.4) • Lesson 6: SWBAT use an area model to multiply a unit fraction by a unit fraction and reason about the relative size of the product to the factors. (5.NF.B.4, 5.NF.B.5) • Lesson 7: SWBAT use an area model to multiply a unit fraction by a non-unit fraction and reason about the relative size of the product to the factors. (5.NF.B.4, 5.NF.B.5) • Lesson 8: SWBAT develop a standard written method for multiplying fractions. (5.NF.B.4) • Lesson 9: SWBAT solve problems involving multiplication of fractions using the computational procedure and models or diagrams when needed. (5.NF.B.4, 5.NF.B.6) • Lesson 10: SWBAT multiply mixed numbers by whole numbers using an area model to apply the distributive property. (5.NF.B.6) • Lesson 11: SWBAT multiply mixed numbers by fractions or mixed numbers using the computational procedure. (5.NF.B.6)	13 lessons

		• Lesson 11, Day 2: Error analysis reteach lesson: SWBAT multiply mixed numbers by fractions or mixed numbers using the computational procedure. (5.NF.B.6) • Lesson 12: SWBAT consider multiplication as scaling by explaining the effects multiplying by fractions less than one, equal to one, and greater than one. (5.NF.B.5) • Lesson 14: SWBAT relate decimal and fraction multiplication using decimals/fractions equivalents and finding the product using area models and/or standard written methods for multiplying fractions. (5.NF.B.4)** • Lesson 18: SWBAT solve word problems using fractions and decimal fraction multiplication by drawing a visual model and/or writing an equation. (5.NF.B.6) *This lesson also addresses standard 5.NF.3. **This lesson also addresses standard 5.NBT.7.	
Understanding Division of a Unit Fraction and a Whole Number	5.NF.B.7	**Unit 9: Dividing Fractions and Decimals:** • Lesson 1: SWBAT divide a whole number by a unit fraction using a tape diagram (and a number line). SWBAT explain why the quotient is greater than the dividend when dividing a whole number by a unit fraction. (5.NF.B.7) • Lesson 2: SWBAT divide a unit fraction by a whole number by drawing a visual model. (5.NF.B.7) • Lesson 3: SWBAT represent fraction division stories with equations. SWBAT solve word problems involving division of whole numbers by unit fractions and unit fractions by whole numbers by drawing visual models to make sense of and solve problems. (5.NF.B.7) • Lesson 4: SWBAT write and solve a story problem that corresponds to tape diagrams and equations for division with fractions and whole numbers. (5.NF.B.7) • Lesson 5: SWBAT solve multi-step fraction word problems involving division by drawing visual models and writing equations. (5.NF.B.7)	5 lessons
Multiply and Divide Decimals/Metric Conversions	5.NBT.B.7, 5.MD.A.1	**Unit 5: Measurement Conversions:** • Lesson 1: SWBAT convert from a larger unit measurement to a smaller unit measurement using a conversion table and an equation. (5.MD.A.1) • Lesson 2: SWBAT convert from a smaller unit measurement to a larger unit measurement using a conversion table and equation. (5.MD.A.1) • Lesson 3: SWBAT solve real-world problems (with measures in the same unit) by converting between measurement units. (5.MD.A.1) • Lesson 4: SWBAT express a measurement in mixed units (review). SWBAT add and subtract mixed units of measure. (5.MD.A.1) • Lesson 5: SWBAT solve multi-step problems in all four operations when measures are given in different units. (5.MD.A.1) **Unit 7: Adding and Subtracting Decimal Fractions:** • Lesson 1: SWBAT add and subtract decimal fractions to the hundredths using visual models. (5.NBT.B.7)	27 lessons

		- Lesson 2: SWBAT estimate sums and differences of decimal numbers by rounding to compatible numbers (whole numbers or halves) and use estimates to gauge the reasonableness of provided answers. (5.NBT.B.7) - Lesson 3: SWBAT add and subtract decimal fractions to the hundredths using methods based on place value (like units concept). (5.NBT.B.7) - Lesson 3, Day 2: Error analysis reteach lesson: SWBAT add and subtract decimal fractions to the hundredths using methods based on place value (like units concept). (5.NBT.B.7) **Unit 8: Multiplying Fractions and Decimals:** - Lesson 13: SWBAT consider multiplication as scaling by explaining the effects of multiplying by decimal fractions less than one, equal to one, and greater than one. (5.NBT.B.7) - Lesson 14: SWBAT relate decimal and fraction multiplication using decimals/fractions equivalents and finding the product using area models and/or standard written methods for multiplying fractions. (5.NBT.B.7)* - Lesson 15: SWBAT generalize and apply a rule for determining the location of the decimal point when using the standard algorithm (by analyzing patterns when using fraction form). (5.NBT.B.7) - Lesson 16: SWBAT multiply decimal fractions using the standard algorithm. SWBAT estimate products and reason about the location of the decimal point in a product using estimation. (5.NBT.B.7) - Lesson 17: SWBAT solve real-world problems by multiplying decimal fractions. SWBAT use estimation to gauge the reasonableness of products. (5.NBT.B.7) - Lesson 17, Day 2: Error analysis reteach lesson: SWBAT solve real-world problems by multiplying decimal fractions. SWBAT use estimation to gauge the reasonableness of products. (5.NBT.B.7) - Lesson 18: SWBAT solve word problems using fractions and decimal fraction multiplication by drawing a visual model and/or writing an equation. (5.NBT.B.7)** - Optional lesson: SWBAT solve multi-step problems involving decimal fractions (focus on converting between units). (5.NBT.B.7, 5.MD.A.1) **Unit 9: Dividing Fractions and Decimals:** - Lesson 6: SWBAT divide whole numbers and decimals by 0.1 and 0.01 by making a connection to division by a unit fraction. (5.NBT.B.7) - Lesson 6, Day 2: Error analysis reteach lesson: SWBAT divide whole numbers and decimals by 0.1 and 0.01 by making a connection to division by a unit fraction. (5.NBT.B.7) - Lesson 7: SWBAT Estimate quotients by rounding to the highest place or compatible numbers. (5.NBT.B.7) - Lesson 8: SWBAT express remainders in quotients as decimals and fractions and interpret them in the context of the problem. (5.NBT.B.7)	

		• Lesson 8, Day 2: Error analysis reteach lesson: SWBAT express remainders in quotients as decimals and fractions and interpret them in the context of the problem. (5.NBT.B.7) • Lesson 9: SWBAT Divide a decimal number by a whole number resulting in a decimal quotient (standard algorithm). (5.NBT.B.7) • Lesson 10: SWBAT divide a whole number by a decimal by creating equivalent fractions with whole number denominators. (5.NBT.B.7) • Lesson 11: SWBAT divide a decimal by a decimal number by creating an equivalent division expression with a whole number divisor. (5.NBT.B.7) • Lesson 11, Day 2: Error analysis reteach lesson: SWBAT divide a decimal by a decimal number by creating an equivalent division expression with a whole number divisor. (5.NBT.B.7) • Lesson 12: SWBAT solve multi-step problems involving all operations with decimal numbers. (5.NBT.B.7, 5.MD.A.1) *This lesson also addresses standard 5.NF.4. **This lesson also addresses standard 5.NF.6.	
2-Dimensional Geometry	5.G.B.3, 5.G.B.4	**Unit 10: 2D Geometry:** • Lesson 1: SWBAT classify polygons and non-polygons based on their attributes. (5.G.B.3) • Lesson 2: SWBAT understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. (5.G.B.3) • Lesson 3: SWBAT classify shapes into sub-categories based on the presence of parallel sides. (5.G.B.3) • Lesson 4: SWBAT classify parallelograms as rectangles based on the presence of four right angles. (5.G.B.3) • Lesson 5: Classify rectangles as equilateral (square) versus non-equilateral (non-square). (5.G.B.3) • Lesson 6: Classify parallelograms as being equilateral (rhombus) versus non-equilateral and apply hierarchical (categorical) logic. (5.G.B.3, 5.G.B.4) • Lesson 8: SWBAT classify triangles by their angles. (5.G.B.3) • Lesson 9: SWBAT classify triangles by angles and sides and justify their classifications. (5.G.B.3)	8 lessons
Algebraic Connections: (Order of Operations, Expressions, Patterns, Coordinate Plane)	5.OA.A.1, 5.OA.A.2, 5.OA.B.3, 5.G.A.1, 5.G.A.2	**Unit 3: Whole Number Multiplication:** • Lesson 1: SWBAT evaluate numerical expressions including multiplication, division, addition, subtraction and grouping symbols by applying the order of operations. (5.OA.A.1) • Lesson 1, Day 2: Error analysis reteach lesson: SWBAT evaluate numerical expressions including multiplication, division, addition, subtraction and grouping symbols by applying the order of operations. (5.OA.A.1) • Lesson 2: SWBAT write simple numerical expressions that record calculations with numbers and interpret numerical expressions without evaluating them. (5.OA.A.1, 5.OA.A.2)	11 lessons

		Unit 11: Coordinate Geometry: • Lesson 1: SWBAT construct a coordinate plane and use it to locate points. (5.G.A.2) • Lesson 2: SWBAT plot and locate points on a coordinate plane. SWBAT explain that the x- and y-coordinates indicate how far to travel from the origin in the direction of the corresponding axis. (5.G.A.1) • Lesson 3: SWBAT identify patterns in coordinate pairs that lead to vertical and horizontal lines, and interpret points on the plane as distances from the axes. SWBAT construct parallel and perpendicular lines using coordinates in the coordinate grid. (5.G.A.2) • Lesson 4: SWBAT use ordered pairs to construct and name shapes on the coordinate grid. (5.G.A.1, 5.G.A.2) • Lesson 5: SWBAT interpret an ordered pair in the coordinate system coordinate to solve real-world problems. (5.G.A.2) • Lesson 5, Day 2: Error analysis reteach lesson: SWBAT interpret an ordered pair in the coordinate system coordinate to solve real-world problems. (5.G.A.2) • Lesson 6: SWBAT represent number patterns that follow rules on the coordinate grid. (5.OA.B.3) • Lesson 7: SWBAT identify and describe the relationship between corresponding terms in two number patterns. (5.OA.B.3)	

Scope and Sequence

If a district uses this resource to implement the state model curriculum for grade 5, the following scope and sequence should be followed to ensure alignment and attention to the progressions of mathematics.

Lesson #	Unit 1: Place Value Understanding
1	5.NBT.1 SWBAT read and write whole numbers in different forms (standard, expanded, and word). Sub-aim: SWBAT name the place value of any digit to millions. **Key point: Using place value, we can write numbers in different forms.**
2	5.NBT.1 SWBAT understand the base 10 structure of the place value system by comparing the value of a digit in one place to its value in another. **Key point: A digit in one place represents 10 times as much as it represents in the place to its right, and 1/10 of what it represents in the place to its left.**
3	5.NBT.1 SWBAT identify and explain place value patterns when multiplying by 10s (whole numbers). **Conjecture: Every time a number is multiplied by a power of 10, each digit shifts one place value to the left.**

4	5.NBT.2 SWBAT record powers of 10 in exponent form. SWBAT multiply by powers of 10 in exponent form. **Conjecture: When multiplying by 10 raised to an exponent, the exponent tells us how many place values the digits will shift.**
4 Day 2	Error Analysis Lesson 5.NBT.2 SWBAT record powers of 10 in exponent form SWBAT record exponential form with a base of 10 in numeral form **Key Point: The exponent tells you how many powers of ten are in the number, the base does not count as a power of ten.**
5	5.NBT.1 SWBAT identify and explain place value patterns when dividing by powers of 10 (whole numbers). **Conjecture: Every time a number is divided by a power of 10, each digit shifts one place value to the right.**
6	5.NBT.1, 5.NBT.3 SWBAT understand decimal place values to thousandths in order to read and write decimal numbers. **Key Point: Place values represent 1/10 of the place to the left.**
6 Day 2	Error Analysis Lesson 5.NBT.1, 5.NBT.3 SWBAT understand decimal place values to thousandths in order to read and write decimal numbers. **Key Point: Each digit must occupy the correct place value when moving between forms. Sometimes we need a “0” to keep other digits in their place.**
7	5.NBT.3 SWBAT express decimal fractions in expanded form and move fluidly between forms. **Key Point: Expanded form reveals the value of each digit and the value of the number.**
8	5.NBT.2 SWBAT explain the effect of multiplying or dividing by powers of ten on the location of digits in a number. **Key point: To multiply or divide decimal fractions by powers of ten, we can shift the digits to the right or the left.**
8 Day 2	Error Analysis Lesson 5.NBT.2 SWBAT explain the effect of multiplying or dividing by powers of ten on the location of digits in a number. **Key Point: When digits shift place values, the placeholder digit “0” must fill any “empty” places**
9	5.NBT.3 SWBAT compare and order two or more decimals to the thousandths by rewriting decimal numbers with a common place value. **Key Point: Decimal fractions rewritten with a common place value can be compared.**
9 Day 2	Error Analysis Lesson 5.NBT.3

	SWBAT compare and order two or more decimals to the thousandths by rewriting decimal numbers with a common place value. **Key Point: The value of decimal fractions depends on the place of each digit not the number of digits.**
10	5.NBT.4 SWBAT round decimal numbers to the thousandths using place value understanding and a number line. **Key point: To round to a decimal place value, determine if the next place contains half or more of the unit.**
10 Day 2	Error Analysis Lesson 5.NBT.4 SWBAT round decimal numbers to the thousandths using place value understanding **Key Point: If a 9 rounds up to 10 you regroup into the next highest place value.**

Lesson #	Unit 2: Fraction Primer
(Opt.)	5.NBT.3, 4.NF.6 (R) SWBAT identify and generate equivalent fractions and decimal fractions (includes fractions <, >, and = to one). **Conjecture: We can rewrite fractions in tenths, hundredths, and thousandths as equivalent decimal fractions using place value.**
1	4.NF.1 (R) SWBAT make equivalent fractions by multiplying by a form of one. **Conjecture: Multiplying by a fraction equal to 1 creates an equivalent fraction.**
2	4.NF.1 (R) SWBAT make equivalent fractions by dividing by a form of one. SWBAT rewrite a fraction in simplest form. **Key Point: Dividing by the largest possible factors creates an equivalent fraction in simplest form.**
3	4.NF.3 (R) SWBAT convert between fractions greater than 1 and mixed fractions. SWBAT explain why the two numbers are equivalent. **Key Point: We can rewrite a fraction greater than 1 as a whole number and a fraction (mixed number).**
4	4.NF.2 (R) SWBAT compare fractions to the nearest benchmark (1/2 or whole) in order to compare. Sub-aims: SWBAT determine the most efficient strategy for comparing or ordering fractions given. **Key Point: Rounding fractions to the nearest benchmark can be an efficient way to compare them.**
5	4.NF.2 (R) SWBAT compare and order fractions by rewriting them with common denominators. Sub-aim: SWBAT think flexibly to choose the best strategy for comparing fractions based on the numbers in the fractions themselves. **Key Point: The strategy I use to compare fractions will depend on the numbers in the fractions.**

6 (Opt.)	Optional Lesson 4.NF.6 ®; 5.NBT.3 (O) SWBAT generate equivalent fractions and decimals using numerical methods (includes fractions <, >, and = to one). **Key Point: Renaming fractions so that the denominator is a multiple of ten is one way to convert between equivalent fractions and decimals.**

Lesson #	Unit 3: Whole Number Multiplication
(Opt.)	4.NBT.5 (R) SWBAT represent and solve multiplication problems using bar models and equations. **Key Point: Multiplication is the repeated addition of equal sized groups.**
1	5.OA.1 SWBAT evaluate numerical expressions including multiplication, division, addition, subtraction and grouping symbols by applying the order of operations. **Conjecture: We simplify expressions following the same order every time: Parenthesis, then Mult/Div, and Add/Sub Last.**
1 Day 2	Error Analysis Lesson 5.OA.1 SWBAT evaluate numerical expressions including multiplication, division, addition, subtraction and grouping symbols by applying the order of operations. **Key Point: When simplifying an expression with multiplication and division you simplify whichever expression comes first reading left to right. This is also true for addition and subtraction.**
2	5.OA.1, 5.OA.2 SWBAT write simple numerical expressions that record calculations with numbers and interpret numerical expressions without evaluating them. **Key Point: The order in which operations and/or symbols are used when writing an expression can change the value of an expression.**
3	5.NBT.5 SWBAT estimate products by rounding to the largest place value or using compatible numbers (up to 3 by 2 digit). **Conjecture- Final /Correct: The best estimate uses numbers as close to the actual as possible.** **Initial/Incorrect conjecture: Rounding to compatible numbers gives the best estimate.**
4	5.NBT.5 SWBAT to multiply 2 by 1 and 3 by 1-digit numbers using and connecting the distributive property to partial products of the standard algorithm. **Conjecture: The standard algorithm efficiently combines partial products by regrouping digits directly into the correct place value.**
5	5.NBT.5 SWBAT multiply 2 by 2-digit numbers using and connecting the distributive property to partial products of the standard algorithm. **Conjecture: To multiply by a 2-digit multiplier, we have to record a power of 10 in our second partial product.**
6	5.NBT.5 SWBAT multiply 3 by 3 and 4 by 3-digit numbers using and connecting the distributive property to partial products of the standard algorithm. **Conjecture: Each place value in the multiplier increases the next partial product by a power of ten.**

7	5.NBT.5 SWBAT multiply 2 by 2 and 3 by 2-digit numbers using the standard algorithm and use estimation to check for reasonableness of the product. **Key point: Estimation is a helpful tool for determining if a calculation is reasonable.**
8	5.NBT.5 SWBAT multiply 3 by 3-digit numbers using the standard algorithm and use estimation to check for reasonableness of the product. **Key point: The standard algorithm is the most efficient way to multiply larger numbers.**
8 Day 2	Error Analysis Lesson 5.NBT.5 SWBAT multiply 3 by 3-digit numbers using the standard algorithm and use estimation to check for reasonableness of the product. **Key Point: When multiplying with the standard algorithm, each additional partial product needs another power of ten**.
9	5.NBT.5 SWBAT solve two-step word problems involving addition, subtraction, and multiplication. **Key point: When multiple steps are needed to solve a real-world problem, the order in which we operate may be important.**
10	5.NBT.5 SWBAT solve multi-step word problems involving addition, subtraction and multiplication using bar models and/or equations to represent the given information. **Key Point: N/A**

Lesson #	Unit 4: Whole Number Division
(Opt.)	4.NBT.6 (R) SWBAT solve and write division word problems by drawing a bar model and writing an equation. Sub-aim: SWBAT interpret remainders in the context of a real-world problem **Key Point: Division is the separation of a known amount into groups of an equal size.**
1	5.NBT.2 SWBAT estimate quotients by rounding to the highest place value and using ‘divide by 10 patterns’ for multi-digit division. **Conjecture: Rounding the dividend and divisor to the highest place value gives a reasonable estimate.**
2	5.NBT.6 SWBAT estimate quotients by rounding to compatible numbers SWBAT determine which estimation strategy yields a more appropriate estimate given the problem context – highest place value strategy or using compatible numbers. **Conjecture: The closer rounded numbers are to the actual numbers, the closer the estimate will be.**
2 Day 2	Error Analysis Lesson 5.NBT.6 SWBAT estimate quotients by rounding to compatible numbers

	SWBAT determine which rounded values yields a more appropriate estimate. **Key Point: Compatible numbers closest to the original numbers provide the most accurate estimate.**
3	5.NBT.6 SWBAT divide two- and three-digit dividends by multiples of 10 with single-digit quotients and make connections to a written method. **Key Point: An estimate can be a tool when calculating actual quotients.**
4	5.NBT.6 SWBAT divide two-digit dividends by two-digit divisors with single-digit quotients and make connections to a written method. **Key Point: When using estimation to find actual quotients, we can adjust if our first try is too big or too small.**
5	5.NBT.6 SWBAT interpret a remainder in the context of a real-world problem. SWBAT divide two- and three-digit dividends by two-digit divisors with single-digit quotients and make connections to a written method. **Key Point: In division story problems a remainder can change the way we answer the question.**
6	5.NBT.6 SWBAT divide three- and four-digit dividends by two-digit divisors resulting in two- and three-digit quotients, reasoning about the decomposition of successive remainders in each place value (students use partial quotients; some students may be pushed to use the standard method to record]. **Conjecture: Units of place value can be regrouped into smaller units to continue dividing.**
6 Day 2	Error Analysis Lesson 5.NBT.6 SWBAT divide three- and four-digit dividends by two-digit divisors resulting in two- and three-digit quotients, reasoning about the decomposition of successive remainders in each place value (students use partial quotients; some students may be pushed to use the standard method to record]. **Key Point: In the standard algorithm we must divide by the largest digit possible in each place value**
7	5.NBT.6 SWBAT divide three- and four-digit dividends by two-digit divisors resulting in two- and three-digit quotients, reasoning about the decomposition of successive remainders in each place value. Sub-aim: SWBAT record division using the standard algorithm. **Key Point: Record a “0” in the quotient when it is not possible to divide a place value without regrouping.**
8	5.NBT.6 SWBAT solve real world and mathematical problems involving all operations. SWBAT interpret remainders in the context of a real-world problem. **Key Point: NA. Exercise will emphasize: Mathematicians develop a plan before solving complex problems.**
8 Day 2	Error Analysis Lesson 5.NBT.6 SWBAT interpret remainders in the context of a real-world problem. **Key Point: How the remainder relates to the quotient depends on the question we’re trying to answer.**

Lesson #	Unit 5: Measurement Conversions
1	5.MD.1 SWBAT convert from a larger unit measurement to a smaller unit measurement using a conversion table and an equation. **Conjecture: Multiply when converting larger units to smaller units.**
2	5.MD.1 SWBAT convert from a smaller unit measurement to a larger unit measurement using a conversion table and equation. **Conjecture: Divide when converting smaller to larger units.**
3	5.MD.1 SWBAT solve real-world problems (with measures in the same unit) by converting between measurement units. **Key point: A conversion table can be used to determine the correct operation for converting between units.**
4	5.MD.1 SWBAT express a measurement in mixed units (review). SWBAT add and subtract mixed units of measure. **Key Point: We need to convert to like units in order to add and subtract them.**
5	5.MD.1 (stretch lesson) SWBAT solve multi-step problems in all four operations when measures are given in different units. **Key Point: We may need to convert to units of measure before we operate.**

Lesson #	Unit 6: Volume
1	5.MD.3 SWBAT define volume by contrasting properties of 2D and 3D figures. SWBAT understand that volume is a property measured in **cubic units.** **Key Point: We can measure the amount of space a three-dimensional shape takes up using cubic units.**
2	5.MD.3, 5.MD.4 SWBAT explore volume by building 3D figures and counting unit cubes. **Key Point: Volume is the number of cubic units needed to fill a space (without gaps or overlaps).**
2 Day 2	Error Analysis Lesson 5.MD.3, 5.MD.4 SWBAT find the volume of figures by counting unit cubes. **Key Point: In pictures of 3D shapes there are cubic units in the figure that you cannot see that must be there to take up space.**
3	5.MD.3, 5.MD.4

	SWBAT find the volume of a rectangular prism by composing and decomposing right rectangular prisms using layers. **Key point: Rectangular prisms are made of uniform layers of unit cubes.**
4	5.MD.5 SWBAT find the volume of a rectangular prism by composing and decomposing right rectangular prisms using layers from different perspectives. **Conjecture: The volume of a rectangular prism is the number of cubes in a layer multiplied by the number of layers.**
5	5.MD.5b SWBAT develop, explain and apply the formulas for finding the volume of right rectangular prisms. **Key Point: The volume of a prism equal to its base area multiplied by its height (v=Bh or v = lwh).**
6	5.MD.5 SWBAT use volume formulas to solve real world and mathematical problems where a dimension is unknown. **Key Point: A formula is an equation that can be used to find a missing dimension of a figure.**
7	5.MD.5c SWBAT understand that volume is additive. SWBAT find the volume of a solid composed of two non-overlapping right rectangular prisms when length, width, and height are given. **Key Point: If a 3D figure is made of multiple rectangular prisms, we can add the volumes of each to find the total volume.**
8	5.MD.5c SWBAT use properties of rectangular prisms to determine the dimensions of two non-overlapping prisms. **Conjecture: We can find missing side lengths by assuming opposite congruent sides.**
8 Day 2	Error Analysis Lesson 5.MD.5c SWBAT use properties of rectangular prisms to determine the dimensions of two non-overlapping prisms. **Key Point; There are many congruent sides on a 3D figure that we can use to find missing dimensions**
9	5.MD.5 SWBAT find the volume of a solid composed of two non-overlapping right rectangular prisms. **Key point: The way we deconstruct the figure can make the dimensions easier or harder to identify.**
10	5.MD.5 SWBAT apply concepts of volume to solve real world multi-step problems involving volume. **Key Point: Mathematicians take important steps to understand complex problems before solving them.**

Lesson #	Unit 7: Adding and Subtracting Decimal Fractions
1	5.NBT.7 SWBAT add and subtract decimal fractions to the hundredths using visual models. Sub-aim: SWBAT explain decimal addition and subtraction methods using the concept of “like units.”

	Conjecture: When working with decimal fractions, we can only add or subtract like units.
2	5.NBT.7 SWBAT estimate sums and differences of decimal numbers by rounding to compatible numbers (whole numbers or halves) and use estimates to gauge the reasonableness of provided answers. Sub-aim: Use estimates to gauge the reasonableness of provided answers. **Conjecture: Rounding decimal fractions to the nearest half or whole gives a reasonable estimate when adding and subtracting.**
3	5.NBT.7 SWBAT add and subtract decimal fractions to the hundredths using methods based on place value (like units concept). Sub-aim: SWBAT gauge the reasonableness of sums and differences using estimates. **Conjecture: The algorithm for adding and subtracting whole numbers can be used with decimal fractions.**
3 Day 2	Error Analysis Lesson 5.NBT.7 SWBAT add and subtract decimal fractions to the hundredths using methods based on place value (like units concept). Sub-aim: SWBAT gauge the reasonableness of sums and differences using estimates. **Key Point: When adding/subtracting values with decimals fraction only combine like units.**
4	5.NF.1, 5.NF.2 SWBAT round fractions to benchmark fractions (0, ½, 1) to estimate sums and differences of fractions with unlike denominators. Students may leverage visual models as needed to help with estimation. **Key Point: Sums and differences can be estimated by rounding to benchmarks 0, ½, and 1.**
4 Day 2	Error Analysis Lesson 5.NF.1 5.NF.2 SWBAT round fractions to benchmark fractions (0, ½, 1) or compatible numbers to estimate sums and differences of fractions with unlike denominators. **Key Point: Number lines can be used to estimate benchmark fractions for odd denominators.**
5	5.NF.1 SWBAT add fractions with like units when regrouping is required and express answers as mixed numbers in simplest form. **Key Point: When a sum represents more parts than needed to make 1 whole, regroup.**
6	5.NF.1 SWBAT Subtract fractions and mixed numbers from whole numbers by regrouping and renaming wholes as fractions with the same denominator. Sub-aim: SWBAT explain when it is necessary to regroup in order to subtract. Sub-aim: SWBAT explain the process of regrouping with fractions (trading a whole for 8/8 in order to subtract some number of 8ths and make a connection to the like units concept) by making connections between a visual model and the numerical process. **Conjecture: We can regroup one whole into a fraction in order to subtract.**
7	5.NF.1, 5.NF.2 SWBAT subtract fractions and mixed numbers with like denominators by regrouping when necessary. Sub-aim: SWBAT explain when it is necessary to regroup in order to subtract.

	Key Point: When there are not enough like units to subtract, regroup from a larger unit.
8	5.NF.1, 5.NF.2 SWBAT add and subtract fractions with unlike denominators by creating equivalent fractions with common denominators. [Students can make like units pictorially or numerically] **Conjecture: We can use equivalent fractions to create like units for adding or subtracting.**
9	5.NF.1, 5.NF.2 SWBAT add and subtract fractions (including work with fractions greater than one) with unlike denominators by creating equivalent fractions with common denominators. [Making like units numerically] **Key Point: Represent fraction stories with bar models to see the relationship between knowns and unknowns in order to write a correct equation.**
9 Day 2	Error Analysis Lesson 5.NF.1 5.NF.2 SWBAT add and subtract fractions and mixed numbers with unlike denominators by creating equivalent fractions with common denominators. **Key Point: When adding/subtracting fractions, using the least common denominator is most efficient.**
10	5.NF.1, 5.NF.2 SWBAT add mixed numbers, whole numbers and improper fractions with unlike denominators **with regrouping**. [Making like units numerically] Sub-aim: SWBAT check the reasonableness of the sums and differences with estimation. **Key Point: When a mixed number contains a fraction greater than one, simplify it and regroup.**
11	5.NF.1, 5.NF.2 SWBAT subtract fractions and mixed numbers with unlike denominators (with regrouping). **Key Point: When subtracting mixed numbers, we might have to regroup from the whole.**
11 Day 2	Error Analysis Lesson 5.NF.1, 5.NF.2 SWBAT subtract fractions and mixed numbers with unlike denominators (with regrouping). **Key Point: When subtracting mixed numbers, compare whole number and fractional parts to determine if regrouping is necessary.**
12	5.NF.1, 5.NF.2 SWBAT solve real world addition and subtraction problems with fractions. Sub-aim: SWBAT check the reasonableness of the sums and differences with estimation **Key Point: We can represent comparison stories using addition and subtraction equations.**
13	5.NF.1, 5.NF.2 SWBAT solve multi-step word problems involving add and subtracting mixed numbers and fractions by drawing a visual model and writing an equation. Sub-aim: SWBAT check the reasonableness of the sums and differences with estimation **Key Point: A single equation can be written to represent a multi-step problem.**
14	5.MD.2 SWBAT read and understand data represented in line plots, and draw simple conclusions from the data.

	Key Point: Line plots model the frequency of each data point in a set (how often it occurs)
14 Day 2	Error Analysis Lesson 5.MD.2 SWBAT read and understand data represented in line plots, and draw simple conclusions from the data. **Key Point: Points on line plots represent the frequency of each occurrence.**
15	5.MD.2 SWBAT create line plots from data in a frequency table and solve problems involving information from the data. **Key Point: In a line plot, data points and intervals must be consistent so that the data is easy to read.**

Lesson #	Unit 8: Multiplying Fractions and Decimals
1	5.NF.3 SWBAT interpret a fraction as division by modeling division problems leading to answers in the form of a fraction or mixed number and making connections to an equation. **Conjecture: A division expression can be represented as a fraction: a$\div b = \frac{a}{b}$**
2	5.NF.3 SWBAT use tape diagrams to represent fractions as division and interpret quotients. **Key Point: In a tape diagram, the quotient is the size of each unit.**
3	5.NF.3, 5.NF.4 SWBAT relate fractions as division to fractions of a set using counters and arrays (pictorial tape diagrams). **Conjecture: A fraction of a number is a multiple of the unit fraction of that number.**
4	5.NF.4 SWBAT find a fraction of any whole number using tape diagrams **Key Point: Tape diagrams are useful for finding a fraction of a larger whole number**
5	5.NF.4 SWBAT multiply a whole number and fraction using a numerical method. Sub-aim: SWBAT relate a fraction of a set to the repeated addition interpretation of multiplication. **Conjecture: To multiply a whole number by a fraction, multiply the number by the numerator and keep the denominator the same. (a x $\frac{b}{c}$ = $\frac{a \times b}{c}$)**
6	5.NF.4, 5.NF.5 SWBAT use an area model to multiply a unit fraction by a unit fraction and reason about the relative size of the product to the factors. Sub aim: SWBAT find area of rectangles with fractional side lengths. **Conjecture: A fraction of a fraction is a smaller fraction.**
7	5.NF.4, 5.NF.5

	SWBAT use an area model to multiply a unit fraction by a non-unit fraction and reason about the relative size of the product to the factors. **Key point: An area model can be used to multiply any two fractions.**
8	5.NF.4 SWBAT develop a standard written method for multiplying fractions. **Conjecture: To multiply two fractions, multiply the numerators and multiply the denominators.**
9	5.NF.4, 5.NF.6 SWBAT solve problems involving multiplication of fractions using the computational procedure and models or diagrams when needed. Sub-aim: SWBAT distinguish between scaling and equal-grouping multiplication problems. **No new key point (review)** **Theme: We can represent fraction story problems in multiple ways in order to solve them: Tape diagrams, set arrays, area models, and expressions/equations.**
10	5.NF.6 SWBAT multiply mixed numbers by whole numbers using an area model to apply the distributive property. **Conjecture: To multiply mixed numbers, find the partial products and add them.**
11	5.NF.6 SWBAT multiply mixed numbers by fractions or mixed numbers using the computational procedure **Key Point: Converting mixed numbers to fractions lets us use the standard algorithm to multiply.**
11 Day 2	Error Analysis Lesson 5.NF.6 SWBAT multiply mixed numbers by fractions or mixed numbers using the computational procedure **Key Point: Converting mixed numbers to fractions lets us use the standard algorithm to multiply.**
12	5.NF.5 SWBAT consider multiplication as scaling by explaining the effects multiplying by fractions less than one, equal to one, and greater than one. **Conjecture: Scaling by a factor less than 1 makes a smaller product and a scale factor more than 1 makes a product larger.**
13	5.NBT.7 SWBAT consider multiplication as scaling by explaining the effects of multiplying by decimal fractions less than one, equal to one, and greater than one. **Conjecture: Scaling by a factor less than 1 get s smaller product and a scale factor more than 1 makes a product larger.**
14	5.NBT.7, 5.NF.4 SWBAT relate decimal and fraction multiplication using decimals/fractions equivalents and finding the product using area models and/or standard written methods for multiplying fractions. **Conjecture: Decimal fractions can be written in fraction form to multiply.**

15	5.NBT.7 SWBAT generalize and apply a rule for determining the location of the decimal point when using the standard algorithm (by analyzing patterns when using fraction form). **Conjecture: The number of times we multiply by 1/10 in the factors equals the number of place values behind the decimal point.**
16	5.NBT.7 SWBAT multiply decimal fractions using the standard algorithm. SWBAT estimate products and reason about the location of the decimal point in a product using estimation. **Conjecture: Estimated products reveal the location of the decimal point in actual products.**
17	5.NBT.7 SWBAT solve real-world problems by multiplying decimal fractions. SWBAT use estimation to gauge the reasonableness of products. **Key Point: An estimate can prove a calculation is reasonable but not that it is accurate.**
17 Day 2	Error Analysis Lesson SWBAT solve real-world problems by multiplying decimal fractions. SWBAT use estimation to gauge the reasonableness of products. **Key Point: The number of decimal place values in the product is the total number of decimal place values in the factors.**
18	5.NF.6, 5.NBT.7 (E) SWBAT solve word problems using fractions and decimal fraction multiplication by drawing a visual model and/or writing an equation. **Key Point: We can rewrite numbers in different forms to solve problems.**
(Opt.)	5.NBT.7, 5.MD.1 SWBAT solve multi-step problems involving decimal fractions (focus on converting between units). **Key Point: Measurements must be in the same unit before operations are performed.**

Lesson #	Unit 9: Dividing Fractions and Decimals
1	5.NF.7 SWBAT divide a whole number by a unit fraction using a tape diagram (and a number line). SWBAT explain why the quotient is greater than the dividend when dividing a whole number by a unit fraction. **Conjecture: To divide a whole number by a unit fraction, multiply the dividend by the denominator.**
2	5.NF.7 SWBAT divide a unit fraction by a whole number by drawing a visual model Sub-aim: SWBAT divide a unit fraction by a whole number by relating division to multiplication **Conjecture: Dividing by a whole number is the same as taking a fraction of that number.**
3	5.NF.7 SWBAT represent fraction division stories with equations.

	SWBAT solve word problems involving division of whole numbers by unit fractions and unit fractions by whole numbers by drawing visual models to make sense of and solve problems. **Key Point: In a division expression or equation, the dividend is the amount to be split or shared equally.**
4	5.NF.7 SWBAT write and solve a story problem that corresponds to tape diagrams and equations for division with fractions and whole numbers. **Key point (building on lesson 3): In a fraction division expression the divisor is a number of parts or size of each part we can make from the dividend.**
5	5.NF.7 SWBAT solve multi-step fraction word problems involving division by drawing visual models and writing equations. **Key Point: If a quantity needed to solve the problem is “missing,” there may be more than one step required to solve.**
6	5.NBT.7 SWBAT divide whole numbers and decimals by 0.1 and 0.01 by making a connection to division by a unit fraction. **Conjecture: Dividing by 0.1 is the same as multiplying by 10.**
6 Day 2	Error Analysis Lesson 5.NBT.7 SWBAT divide whole numbers and decimals by 0.1 and 0.01 by making a connection to division by a unit fraction. **Key Point: Dividing by 0.1 and 0.01 causes the digits in the dividend to shift to the left for each one tenth in the divisor**
7	5.NBT.7 SWBAT Estimate quotients by rounding to the highest place or compatible numbers **Key point: To estimate with decimal fractions, round to compatible numbers.**
8	5.NBT.7 SWBAT express remainders in quotients as decimals and fractions and interpret them in the context of the problem. **Key point: Remainders represent a part of a whole, so they can be represented in both fraction and decimal form.**
8 Day 2	Error Analysis Lesson 5.NBT.7 SWBAT express remainders in quotients as decimals and fractions and interpret them in the context of the problem. **Key point: A number can be further divided by regrouping decimal place values.**
9	5.NBT.7 SWBAT Divide a decimal number by a whole number resulting in a decimal quotient (standard algorithm) **Key point: We can divide decimal dividends using the same place value strategies used for whole numbers.**
10	5.NBT.7 SWBAT divide a whole number by a decimal by creating equivalent fractions with whole number denominators. **Conjecture: A division expression can be rewritten as an equivalent expression that is easier to solve.**
11	5.NBT.7 SWBAT divide a decimal by a decimal number by creating an equivalent division expression with a whole number divisor.

	Key Point: When dividing decimals, use an equivalent expression with a whole number divisor.
11 Day 2	Error Analysis Lesson 5.NBT.7 SWBAT divide a decimal by a decimal number by creating an equivalent division expression with a whole number divisor. **Key Point: To create an equivalent division number sentence the decimal shifts the same number of times in the dividend as the divisor and fill new place values with a zero.**
12	5.NBT.7, 5.MD.1 SWBAT solve multi-step problems involving all operations with decimal numbers. **Key Point: No new key point**

Lesson #	Unit 10: 2D Geometry
1	5.G.3 SWBAT classify polygons and non-polygons based on their attributes. Sub-aim: SWBAT understand angle and side notation and apply the understanding to justifications provided. **Key Point: Shapes can be classified into categories based on their attributes, and some can be classified into sub-categories.**
2	5.G.3 SWBAT understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. **Conjecture: Attributes of a category are shared with all of its sub-categories.**
3	5.G.3 SWBAT classify shapes into sub-categories based on the presence of parallel sides. **Conjecture: Some quadrilaterals can be classified in sub-categories based on the presence of parallel sides.**
4	5.G.3 SWBAT classify parallelograms as rectangles based on the presence of four right angles. **Conjecture: If a parallelogram has four right angles, it is a rectangle.**
5	5.G.3 Classify rectangles as equilateral (square) versus non-equilateral (non-square). **Conjecture: A square is always a rectangle but a rectangle is not always a square.**
6	5.G.3, 5.G.4 Classify parallelograms as being equilateral (rhombus) versus non-equilateral and apply hierarchical (categorical) logic. **Conjecture: Parallelograms are rhombi if they are equilateral, so squares are rhombi.**
7	4.MD.6 (R) SWBAT measure and create angles using a protractor. Sub-aim: SWBAT justify the reasonableness of measurements by benchmarking to right angles (acute, right, and obtuse vocabulary).

	Key Point: Protractors are used to measure and create angles precisely.
8	5.G.3 SWBAT: Classify triangles by their angles. **Key Point: triangles can be classified according to the type of angles they have.**
9	5.G.3 SWBAT classify triangles by angles and sides and justify their classifications. Sub-aim: SWBAT understand angle and side notation and apply the understanding to justifications provided. **Key Point: triangles can be classified based on their angles and their sides.**

Lesson #	Unit 11: Coordinate Geometry
1	5.G.2 SWBAT construct a coordinate plane and use it to locate points. **Key Point: We can construct coordinate planes from two number lines to create a system for naming the exact location of points.**
2	5.G.1 SWBAT plot and locate points on a coordinate plane. SWBAT explain that the x- and y-coordinates indicate how far to travel from the origin in the direction of the corresponding axis. **Key Point: To plot (x, y) travel x units horizontally from the origin and then y units vertically.**
3	5.G.2 SWBAT identify patterns in coordinate pairs that lead to vertical and horizontal lines, and interpret points on the plane as distances from the axes. SWBAT construct parallel and perpendicular lines using coordinates in the coordinate grid. **Conjecture: Vertical lines have points with the same x-coordinate and horizontal lines have points with the same y-coordinate.**
4	5.G.1, 5.G.2 SWBAT use ordered pairs to construct and name shapes on the coordinate grid. **Key Point: We can plot ordered pairs as vertices of shapes so that the shapes will contain specific types of lines and angles.**
5	5.G.2 SWBAT interpret an ordered pair in the coordinate system coordinate to solve real-world problems. **Key Point: The ordered pair (x, y) can represent two distinct data points that occur together in the real world.**
5 Day 2	Error Analysis Lesson 5.G.2 SWBAT interpret an ordered pair in the coordinate system coordinate to solve real-world problems. **Key Point: The meaning of an ordered pair depends on the units of the x and y axis.**
6	5.OA.3 SWBAT represent number patterns that follow rules on the coordinate grid.

	Key Point: If there is a relationship between x and y, we can use it create an ordered pair for any value of x.
7	5.OA.3 SWBAT identify and describe the relationship between corresponding terms in two number patterns. **Key Point: We can use the relationship between corresponding terms to make predictions about real-world scenarios.**

Supports of Diversity, Equity and Inclusion

Please provide any information relative to supporting culturally responsive instruction, multi-language learners, and students with disabilities

Supporting Implementation:
A unique aspect of the AF Math powered by Leap Educational Consulting Program is that we do not simply offer a curriculum. We know that rigorous materials are only one component of meeting the needs of all students. In most cases, the work is not around adopting a curriculum, but rather executing the content with excellence. In order to support this excellence and to support schools and districts in the change management work of a new curriculum, Leap Educational Consulting offers a range of comprehensive coaching services.

Our Vision: We envision a world in which all students experience an education that empowers them to lead lives of choice and opportunity.

Our Mission: We work in deep partnership with educators committed to dismantling systemic racism to accelerate their impact. We do this by providing comprehensive supports that build their capacity to drive equitable and sustainable academic outcomes for all students.

Our Approach: At Leap, we believe that all students can thrive in math. The formula for success is simple – access to grade level math curriculum coupled with excellent instruction will equal equitable outcomes for kids. Our curriculum was rated amongst the highest on EdReports.

Our Theory of Change: If Leap provides effective, best-in-class support to school leaders…Then school leaders will lead with equity, have a high bar for what students can do, be equipped with the technical and adaptive skills to effectively develop teachers quickly, and create systems that will ensure strong student math outcomes...Then teachers will provide more rigorous, standards-aligned, inquiry-based, engaging math instruction to all students...Then students will have access to grade-level math content and an educational experience where they are deeply engaged, powerful doers and critical thinkers of mathematics and are well-positioned for college and beyond.

Our Results:
From our most recent test results in elementary school (ES) Math:
- 44% achieved at least 10 points growth in state results in one year
- 78% achieved at least 5 points growth in state results in one year

From our most recent test results in middle school (MS) Math:
- 53% achieved at least 10 points growth in state results in one year
- 93% achieved at least 5 points growth in state results in one year

What this looks like in action: Schools and districts partner with Leap Educational Consulting for support in their adoption and implementation of the AF Math powered by Leap Educational Consulting Program. This support is highly customizable. We recommend new schools and districts elect the "full partnership," which includes:
- **Weekly personalized coaching of the school leader** that is leading the implementation of the AF Math powered by Leap Educational Consulting Program: We believe that by building the skillset of the instructional leader, this will lead to rapid progress with teachers and students. This personalized coaching includes skills

such as effective observations, teacher coaching meetings, leading intellectual preparation with teachers, leading looking at student work protocols with teachers, facilitating professional development, and leading change. The leader receives support in leveraging these skills to ensure strong implementation of the AF Math powered by Leap Educational Consulting Program.

- **In person and virtual site visits throughout the school year** to do a "deep dive" on progress towards strong implementation of the AF Math powered by Leap Educational Consulting Program, review of student data, and action planning based on progress to lead to rapid growth.
- **Access to resources,** including all curriculum and assessments, a bank of pre-designed professional development sessions for teachers, videos of lessons in execution by teachers across the country, a network of other leaders implementing the AF Math powered by Leap Educational Consulting Program, and more.
- **Professional development** for the school leader in a virtual setting of peers across the country. This development includes an initial summer launch training as well as ongoing sessions throughout the school year. Some of the professional developments include materials that can be then used in teacher professional development.
- **Differentiated support,** including support preparing for the state exam.

More information is available at https://www.leapeducationalconsulting.org/.

Supporting all Learners:

Embedded supports: AF Math powered by Leap Educational Consulting Program has several embedded supports for all learners in each set of daily lesson materials:

Embedded support	**Description**
Differentiated entry points for independent practice	Each set of independent practice for daily lessons has 3 levels of practice: "Bachelors level," "Masters level," and "Ph.D. level." This allows teachers to have students start the practice at different levels. This supports all levels of learners, including students that may need more scaffolding or support, including students with disabilities, as well advanced learners. This approach also ensures students are not assigned a static grouping, but rather the teacher can assign practice based on what is best for that specific day or aim for individual students.
Key vocabulary	Each daily lesson plan includes a list of key vocabulary with definitions. This supports in making the learning accessible for all learners as well as supporting mathematical vocabulary development by utilizing a set of key terms.
Visual representations	All daily lessons encourage modeling to visually represent the key math concepts. This is supportive for all learners, especially visual learners and many of those that may have a disability.

Leap Educational Consulting provides a set of recommendations on how to support students throughout each part of the lesson cycle. As part of the ongoing coaching mentioned above, additional coaching in this area is available. Please read below for these supports for each part of the lesson cycle:

Where a Student Might Get Stuck	*Strategies and Tactics to Support*
Introduction to New Material (INM) portion of the lesson: Understanding and making sense of word problems, particularly multi-step word problems.	• Consistently leverage the sense making prompts <resource available> to support students in the questions they can ask themselves when unpacking and making sense of a challenging word problem. Leverage a one pager resource that can be provided to students as an additional scaffold. • Make the steps visible on the page using a template for students <example available>. • Visual UPESC (understand, plan, estimate, solve, check) anchor chart <resource available>. • Emphasize the sense making work intentionally during the Introduction to New Material. See an example of Ms. Joseph leading this process via a video resource.
Test the Conjecture (TTC) Specific:	• Ensure the conjecture is posted somewhere visible for the whole class and on student's individual packets

Understanding how the conjecture can be applied to solve a problem and then recalling alternate strategies that can be used to prove a conjecture	to refer back to (post the conjecture in students' primary language if it is not English). ● Allow time for recollection and processing- e.g. "Before we ask ourselves how we can apply our conjecture to solve this problem, I want us all to flip the page back and re-read our conjecture. Take 30 seconds to re-read your conjecture and consider how this conjecture could be applied to solve this problem." ● Provide students with individual anchor charts of the universal TTC prompts <resource available>. ● Create living anchor charts <resource available> of strategies and concepts that students have learned and used as a reference and a resource of ways to prove conjectures.
Pacing and Engagement: One of the primary places learners get stuck especially when they are engaging with content that is rigorous for them is at the engagement level. Particularly when it is challenging for a student to do the work being asked of them, they are less likely to be successful when they are feeling disengaged.	● Draw meaningful connections between content and real-world application when unpacking the problem. ● Create catch and release points to increase engagement, see suggestions for each lesson structure in a resource available. ● Vary work modality (i.e. leverage partner practice at one release point and then independent practice at another).
Foundational Fluency: Most often in the solve portion of the TTC/INM, students are required to apply foundational fluency (ex. decimal multiplication) to successfully apply the conjecture/key point and often get stuck here if the fluency skill is one they have not yet mastered.	● Strategic pre-teaching- include a warm up/ do now problem which isolates the skill students will be asked to apply later. ● Narrow the scope of the productive struggle- identify the most important skill/concept students are engaging with and other skills which may cause them to get stuck. From there: ○ Adapt the task- ex. Change fraction values to integers if working with fractions if it is not the most important skill for the lesson. ○ Provide a support/work around- ex. a calculator, multiplication fact table.
Release to Independent Work: Often students who are struggling with accessing content get stuck right at the point of being released to work either during the lesson itself or post the lesson as they transition in partner and independent practice.	● Proactive prioritized check ins- identify scholars who are likely to have the most trouble getting started and circulate to them first. ● Strategic collaborative partnerships- consider pairing students by mixed ability level and also need (i.e. a student who is learning English could be paired with another student who speaks both their primary language and English). ● Annotate an example or exemplar with a criteria for success for practice- <samples available> (note- only provide after TTC/INM complete). ● Teacher names first lap focus that is a universal entry point for students to get started (ex "I am looking that you annotate the problem for the percent, part, and total"). ● Permanent visual anchors that can be referenced during practice (ex- "What to do when I am stuck?" anchor chart <resource> with ways for students to engage independently before asking for help).
Entry Point/Access to Work: If the problem a student is working on is not in their zone of proximal development, they are likely to disengage or shut down. It is important to consider barriers to entry that might not be central to the understanding of the lesson but would prevent a student from applying what they learned.	● Prior grade level fluency skills: ○ Focus the practice on the most important learning and remove any fluency barriers/provide tools to support (ex. If the focus of the lesson is not fluency/computation but it is required to solve, provide a multiplication table, calculator, personal number integer line) <resources available>. ● Practice is either too hard/too easy: ○ Use data strategically to assign practice problems for groups of students (ex- use prior days' exit tickets to determine who is mastering content and ready for different levels of practice

	problems). ● Difficulty reading the problem/language processing: ○ Pair with partner who is strong in reading to have the student check in with as needed. ○ Circulate strategically to these students first/pull them for a small group at the launch of practice to read the problem aloud. ○ Create a specific visual signal for these students (ex. orange post it) that they can put on their desk to indicate when they need support with this in the moment.
Working Independently for Sustained Periods: A common challenge for students during practice time is that they are eager for feedback/support from the teacher but aren't able to get it as frequently as they would like due to capacity.	● Cooperative learning opportunities: ○ Pair students strategically for partner practice (heterogeneous groupings). ○ Designate 4-5 students who may not be challenged as much by early problems to coach and support students through the first partner practice problem as peer leaders. ● Additional scaffolding/extra layer of support: ○ Pull a small group in the moment of students struggling and provide additional scaffolding for accessing the replicable thinking steps. ○ Create a first for feedback list of students who benefit from feedback right away/more frequently. ○ Create a scrambled answer key for students to check their own work <example available>.
Other- Opportunities to Differentiate Up: When considering all learners, it is important that we don't overlook students who might be seeking an opportunity to be challenged that isn't yet being met because of where the class is at holistically.	● Start students who are mastering content on more challenging problems right away. ● Add a table/workspace where a subset of students work collaboratively together during practice on the highest level problems in the work packet. ● Earning master cards- once students master certain targets, they get a card that allows them to skip to higher level practice. ● Provide an annotated answer key for students to check their own work independently/ identify their own mistakes.