Hainesport Township School District
211 Broad Street Hainesport, NJ 08036

Course Title: Math Grade 3
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Course Description and Concepts

In Grade 3, instructional time should focus on four critical areas: developing understanding of multiplication and division and strategies for multiplication and division within 100; developing understanding of fractions, especially unit fractions (fractions with numerator 1); developing understanding of the structure of rectangular arrays and of area; and describing and analyzing two-dimensional shapes.

Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

New Jersey Student Learning Standards Math

New Jersey Student Learning Standards for Mathematics

NJ Technology Standards

8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and create and communicate knowledge.

8.2 Technology Education, Engineering, Design and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Career Ready Practices

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

CRP1. Act as a responsible and contributing citizen and employee.
CRP2. Apply appropriate academic and technical skills.
CRP3. Attend to personal health and financial well-being.
CRP4. Communicate clearly and effectively and with reason.
CRP5. Consider the environmental, social and economic impacts of decisions.
CRP6. Demonstrate creativity and innovation.
CRP7. Employ valid and reliable research strategies.
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP9. Model integrity, ethical leadership and effective management.

CRP10. Plan education and career paths aligned to personal goals.
CRP11. Use technology to enhance productivity.
CRP12. Work productively in teams while using cultural global competence.

http://www.state.nj.us/education/cccs/2014/career/CareerReadyPractices.pdf

Pacing Guide

Unit Topic	Unit #	APX Unit Length
Multiplication, Division and Concepts of Area	I	45 Days
Modeling Multiplication, Division and Fractions	II	45 Days
Fractions as Numbers and Measurement	III	45 Days
Representing Data	IV	45 Days

Curricular Framework

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 1 **Multiplication, Division and Concepts of Area**	• 3.OA.A.1 • 3.OA.A.2 • 3.OA.A.3* • 3.OA.A.4 • 3.OA.B.6 • 3.MD.C.5 • 3.MD.C.6 • 3.MD.C.7a-b • 3.NBT.A.1 • 3.NBT.A.3	• Represent and solve problems involving multiplication and division • Understand properties of multiplication and the relationship between multiplication and division • Understand concepts of area and relate area to multiplication and addition (Geometric measurement) • Use place value understanding and properties of operations to perform multi-digit arithmetic	

Unit 1: ***Suggested Open Educational Resources***	3.OA.A.2 Fish Tanks 3.OA.A.3 Analyzing Word Problems Involving Multiplication 3.OA.A.4 Finding the unknown in a division equation 3.MD.C.6 Finding the Area of Polygons 3.MD.C.7a India's Bathroom Tiles 3.NBT.A.1 Rounding to 50 or 500 3.NBT.A.1 Rounding to the Nearest Ten and Hundred 3.NBT.A.3 How Many Colored Pencils?		MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others.
Unit 2 **Modeling Multiplication, Division and Fractions**	• 3.OA.A.3* • 3.OA.B.5 • 3.MD.C.7c • 3.MD.C.7d* • 3.OA.C.7* • 3.OA.D.8* • 3.OA.D.9 • 3.NBT.A.2* • 3.NF.A.1 • 3.G.A.2	• Represent and solve problems involving multiplication and division • Understand properties of multiplication and the relationship between multiplication and division • Geometric measurement: understand concepts of area and relate area to multiplication and to addition • Multiply and divide within 100 • Solve problems involving the four operations, and identify and explain patterns in arithmetic • Use place value understanding and properties of operations to perform multi-digit arithmetic • Develop understanding of fractions as numbers. • Reason with shapes and their attributes	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision.

Unit 2: ***Suggested Open Educational Resources***	3.OA.A.3 Two Interpretations of Division 3.OA.B.5 Valid Equalities? (Part 2) 3.MD.C.7c Introducing the Distributive Property 3.OA.C.7 Kiri's Multiplication Matching Game 3.OA.D.8 The Class Trip 3.OA.D.9 Addition Patterns 3.NF.A.1 Naming the Whole for a Fraction 3.G.A.2 Representing Half of a Circle		MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.
Unit 3 **Fractions as Numbers and Measurement**	• 3.NF.A.2 • 3.NF.A.3 • 3.MD.A.1 • 3.MD.A.2 • 3.G.A.1 • 3.MD.D.8 • 3.OA.C.7*	• Develop understanding of fractions as numbers • Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects • Reason with shapes and their attributes • Recognize perimeter as an attribute of plane figures and distinguish between linear and area measure • Multiply and divide within 100	MP.1 Make sense of problems and persevere in solving them.
Unit 3: ***Suggested Open Educational Resources***	3.NF.A.2 Closest to 1/2 3.NF.A.2 Find 1 Starting from 5/3 3.NF.A.2 Locating Fractions Greater than One on the Number Line 3.NF.A.3b, 3.G.A.2, 3.MD.C.6 Halves, thirds, and sixths		MP.2 Reason abstractly and quantitatively.

	3.MD.A.1 Dajuana's Homework 3.MD.A.2 How Heavy? 3.MD.D Shapes and their Insides		MP.3 Construct viable arguments and critique the reasoning of others.
Unit 4 **Representing Data**	• 3.MD.B.3 • 3.MD.B.4 • 3.OA.C.7* • 3.OA.D.8* • 3.NBT.A.2* • 3.MD.C.7d*	• Represent and interpret data • Multiply and divide within 100 • Use place value understanding and properties of operations to perform multi-digit arithmetic • Understand concepts of area and relate area to multiplication and to addition	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.
Unit 4: ***Suggested Open Educational Resources***	3.MD.C.7d Three Hidden Rectangles 3.OA.D.8 The Stamp Collection 3.NBT.A.2, 3.MD.B.3, 3.OA.A.3 Classroom Supplies		MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.

Unit 1 Grade 3		
Content & Practice Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
• 3.OA.A.1. Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. For example, describe and/or represent a context in which a total number of objects can be expressed as 5 x 7.	MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics.	Concept(s): • Multiplication is a means to determine the total number of objects when there are a specific number of groups with the same number of objects in each group. • Multiplication gives the same result as repeated addition. • Product of two whole numbers is the total number of objects in a number of equal groups. Students are able to: • interpret products of whole numbers as a total number of objects. • use repeated addition to find the total number of objects arranged in an array and in equal groups and compare to the result of multiplication. • describe a context in which a total number of objects is represented by a product. • interpret the product in the context of a real-world problem.

		Learning Goal 1: Interpret products of whole numbers as repeated addition and as the total number of objects (up to 100) in equal groups or arrays.
• 3.OA.A.2. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe and/or represent a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.	MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics.	Concept(s): • Division is a means to finding equal groups of objects. • Division gives the same result as repeated subtraction. • Quotient of two whole numbers is the number of objects in each share when objects are grouped equally into shares. • Quotient of two whole numbers is the number of shares when objects are grouped into equal shares of objects. Students are able to: • interpret division of whole numbers as a number of equal shares or the number of groups when objects are divided equally. • use repeated subtraction to find the number of shares or the number of groups and compare to the result of division. • describe a context in which the number of shares or number of groups is represented with division. • interpret the quotient in the context of a real-world problem. Learning Goal 2: Interpret the quotient as a set of objects (up to 100) partitioned equally into a number of shares and as the number of equal shares.
• 3.OA.A.3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by	MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics.	Concept(s): No new concept(s) introduced Students are able to: • multiply to solve word problems involving equal groups and arrays.

using drawings and equations with a symbol for the unknown number to represent the problem. *(benchmarked)		● divide to solve word problems involving equal groups and arrays. ● represent a word problem with a drawing showing equal groups, arrays, equal shares, and/or total objects. ● represent a word problem with an equation. Learning Goal 3: Use multiplication and division within 100 to solve word problems by modeling equal groups or arrays and by writing equations to represent equal groups or arrays
● 3.OA.A.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ÷ 3, 6 × 6 = ?.	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concept(s): ● Equal sign indicates that the value of the numerical expressions on each side are the same. ● Unknown in an equation (4 x __ = 20 and 20 = ? x 4) represents a number. ● Unknown can be in different positions. ● Letters can represent numbers in equations. Students are able to: ● determine which operation is needed to find the unknown. ● multiply or divide, within 100, to find the unknown whole number in a multiplication or division equation. Learning Goal 4: Determine the unknown in a division or multiplication equation relating 3 whole numbers (within 100).
● 3.OA.B.6. Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.	MP.3 Construct viable arguments and critique the reasoning of others. MP.6 Attend to precision.	Concept(s): ● Division can be represented as a multiplication problem having an unknown factor.

	MP.7 Look for and make use of structure.	• Relationships between factors, products, quotients, divisors and dividends. Students are able to: • write division number sentences as unknown factor problems. • solve division of whole numbers by finding the unknown factor. Learning Goal 5: Solve division of whole numbers by representing the problem as an unknown factor problem.
• 3.MD.C.5. Recognize area as an attribute of plane figures and understand concepts of area measurement. 3.MD.C.5a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. 3.MD.C.5b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units. • 3.MD.C.6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units).	MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): • Area is the amount of space inside the boundary of a (closed) figure. • Square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. • Plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units area can be found by covering a figure with unit squares. • Area of a figure can be determined using unit squares of other dimensions. Students are able to: • count unit squares in order to measure the area of a figure. • use unit squares of centimeters, meters, inches, feet, and other units to measure area. Learning Goal 6: Measure areas by counting unit squares (cm^2, m^2, in^2, ft^2, and improvised units).

● 3.MD.C.7. Relate area to the operations of multiplication and addition. 3.MD.C.7a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. 3.MD.C.7b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): ● Area of a rectangle is found by multiplying the side lengths. ● Area of a rectangle may be found by tiling. Students are able to: ● tile a rectangle with unit squares. ● multiply side lengths of a rectangle to find its area and compare the result to that found by tiling the rectangle with unit squares. ● solve real world and mathematical problems involving measurement. ● represent a rectangular area as the product of whole-numbers. Learning Goal 7: Tile a rectangle to find its area and explain the relationship between tiling and multiplying side lengths to find the area of rectangles; solve real world problems by multiplying side lengths to find areas of rectangles.
● 3.NBT.A.1. Round whole numbers to the nearest 10 or 100.	MP 2 Reason abstractly and quantitatively.	Concept(s): ● Rounding leads to an approximation or estimate. Students are able to: ● use number lines and a hundreds charts to explain rounding numbers to the nearest 10 and 100. ● round a whole number to the nearest 10. ● round a whole number to the nearest 100.

		Learning Goal 8: Round whole numbers to the nearest 10 or 100.
● 3.NBT.A.3. Multiply one-digit whole numbers by multiples of 10 in the range 10 to 90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	MP 2 Reason abstractly and quantitatively.	Concept(s): ● Multiples of 10 can be represented as a specific number of groups of ten. Students are able to: ● multiply to determine the total number of groups of ten. ● multiply one-digit whole numbers by multiples of 10. Learning Goal 9: Multiply one digit whole numbers by multiples of 10 (10-90).

Unit 1 Overview (Place Value & Operations with Whole Numbers)	
Content Area	Mathematics
Unit Title	Place Value & Operations with Whole Numbers
Grade Level	Grade 3
Recommended Pacing	APX: 45 Days
Unit Summary	In this unit of study students will add and subtract within 1,000, represent and interpret data, and

	understand multiplication.
Interdisciplinary Connections	Primary Interdisciplinary Connections: Science, ELA
21st Century Themes/Career Ready Practices ● Communicating with students ● Using questioning and discussion techniques ● Engaging students in learning ● Using assessment in instruction ● Demonstrating Flexibility and Responsiveness	CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.
Core Instructional Materials	enVisions Math Pearson Realize IXL GSuite for Education Projector Internet resources Activity handouts from the teacher Presentations via technology including educational videos on Safari and youtube.com · Subject software Internet resources Presentations via technology, including documentaries and videos from Safari, youtube.com and teacher-created materials.

Standard(s)/Mathematical Concepts
Mathematical Practice Standards: ● MP1: Make sense of problems and persevere in solving them. ● MP2: Reason abstractly and quantitatively ● MP3: Construct viable arguments and critique the reasoning of others. ● MP4: Model with mathematics.

- MP5: Use appropriate tools strategically.
- MP6: Attend to precision.
- MP7: Look for and make use of structure.
- MP8: Look for and express regularity in repeated reasoning.

Technology Standards:

- 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.Assess the credibility and accuracy of digital content.

- 8.2 Technology Education, Engineering, Design and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Progress Indicator(s) #	Progress Indicator Defined
RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
RI.3.4	Determine the meaning of general academic and domain specific words and phrases in a text relevant to a grade three topic or subject area.
RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
8.1.P.A.1	Use an input device to select an item and navigate the screen
8.1.P.A.2	Navigate the basic functions of a browser

8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums)
8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems
8.1.5.A.3	Use a graphic organizer to organize information about problem or issue
8.2.2.C.1	Brainstorm ideas on how to solve a problem or build a product.
8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
8.1.5.A.2	Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.
8.1.5.A.3	Use a graphic organizer to organize information about problem or issue.
8.1.P.A.3	Use digital devices to create stories with pictures, numbers, letters, and word
8.1.P.A.4	Use basic technology terms in the proper context in conversation with peers and teachers (e.g., camera, tablet, internet, mouse, keyboard, and printer.)
8.1.P.A.5	Demonstrate the ability to access and use resources on a computing device.
3.OA.A.1.	Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. For example, describe and/or represent a context in which a total number of objects can be expressed as 5 x 7.
3.OA.A.2.	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe and/or represent a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.

3.OA.A.3.	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. *(benchmarked)
3.OA.A.4.	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ÷ 3, 6 × 6 = ?.
3.OA.B.6.	Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.
3.MD.C.5.	Recognize area as an attribute of plane figures and understand concepts of area measurement.
3.MD.C.5a.	A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.
3.MD.C.5b.	A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.
3.MD.C.6.	Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units).
3.MD.C.7.	Relate area to the operations of multiplication and addition.
3.MD.C.7a.	Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

3.MD.C.7b.	Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
3.NBT.A.1.	Round whole numbers to the nearest 10 or 100.
3.NBT.A.3.	Multiply one-digit whole numbers by multiples of 10 in the range 10 to 90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

District/School Formative Assessment Plan	District/School Summative Assessment Plan
Formative assessment informs instruction and is ongoing throughout a unit to determine how students are progressing against the standards. ● Mathematical Vocabulary Activities ● Assessment Item Analysis ● UDL Menu ● Do Now / Exit Ticket ● Teacher / Student Questioning ● Class / Small Group Discussion ● Organizers ● Peer / Self Assessment ● Visual Presentations ● Think Pair Share ● Teacher Observation / Anecdotal Records ● Computer Based Applications/Programs ● Practice Presentations ● Homework Activities	*Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.* ● Unit Test 1 Assessment 1 (Pre Progress Reporting Period 1) ● Unit Test 1 Assessment 2 ● Teacher Constructed Standards Based Quiz 1(Pre Progress Reporting Period 1) ● Teacher Constructed Standards Based Quiz 2 ● Alternative Assessment Teacher Constructed 1 (Pre Progress Reporting Period 1) ● Alternative Assessment Teacher Constructed 2
District/School Writing Tasks	

Primary Focus *This is connected to the types of writing as indicated in the standards:* ● Informational/Explanatory ● Research	**Routine Writing** *This is daily writing or writing that is done several times over a week.* ● Text Dependent Writing (TDQ) ● Quickwrites ● Routine Writing

Unit Essential Questions
● How can you add and subtract whole numbers and decide if an answer is reasonable? ● How can you represent and interpret data? ● How can you use multiplication to find how many in all?
Unit Enduring Understandings
● Add and subtract within 1,000 ● Represent and interpret data ● Understand multiplication
Key Vocabulary
● Associative Property of Addition ● Commutative Property of Addition ● Compatible numbers ● Estimate ● Identity Property of Addition ● Pattern ● Round ● Bar Graph ● Frequency Table ● Horizontal bar graph ● Key ● Line plot

- Picture graph
- Scale
- Vertical bar graph

Unit Learning Targets (Students will do…)

- Identify and describe whole-number patterns and solve problems.
- Round 2- and 3- digit numbers to the nearest ten or hundred.
- Use compatible numbers and rounding to estimate sums.
- Count by tens and ones, use a number line, make compatible numbers, or use friendly number to find sums mentally.
- Use the Commutative and Associative Properties of Addition to add more than two addends.
- Use the break apart strategy to add 3-digit numbers.
- Use place value to add 3-digit numbers.
- Use compatible numbers and rounding to estimate differences
- Use a number line, friendly numbers, or the break apart strategy to find differences mentally.
- Use place value to subtract 3-digit numbers.
- Use the combine place values strategy to subtract 3-digit numbers.
- Solve addition and subtraction problems by using the strategy draw a diagram.
- Organize data in tables and solve problems using the strategy make a table.
- Read and interpret data in a scaled picture graph.
- Draw a scaled picture graph to show data in a table.
- Read and interpret data in a scaled bar graph.
- Draw a scaled bar graph to show data in a table or picture graph.
- Solve one- and two- step compare problems using data represented in scaled bar graphs.
- Read and interpret data in a line plot and use data to make a line plot.
- Model and skip count objects in equal groups to find how many there are.
- Write an addition sentence and a multiplication sentence for a model.

- Model and skp count on a number line to find how many there are.
- Solve one- and two- step problems by using the strategy draw a diagram.
- Use arrays to model products and factors.
- Model the Commutative Property of Multiplication and use it to find products.
- Model multiplication with the factors 1 and 0.

Instructional Best Practices and Exemplars
Instructional Best Practices and Exemplars **Instructional Best Practices** **(Please see information in attached link)**

Unit 2 Grade 3		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
• 3.OA.A.3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. *(benchmarked)	MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics.	Concept(s): No new concept(s) introduced Students are able to: • multiply to solve word problems involving arrays and measurement quantities (area). • divide to solve word problems involving arrays and measurement quantities (area). • represent a word problem with a drawing or array. • represent a word problem with an equation.

		Learning Goal 1: Use multiplication and division within 100 to solve word problems involving measurement quantities (area) using drawings.
• 3.OA.B.5. Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5× 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 =16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*[Students need not use the formal terms for these properties.] *[Limit to single digit factors and multipliers. 7 x 4 x 5 would exceed grade 3 expectations because it would result in a two-digit multiplier (28 x 5)] • 3.MD.C.7. Relate area to the operations of multiplication and addition. 3.MD.C.7c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* × *b*	MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): • Properties are rules about relationships between numbers. • Changing the order of factors does not change the result of multiplication. • Changing the order of numbers does change the result of division. • Area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* × *b* and *a* × *c*. • Area models can be used to represent the distributive property. Students are able to: • multiply whole numbers using the commutative property as a strategy. • multiply whole numbers using the associative property as a strategy. • use tiling to show that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* × *b* and *a* × *c*. • multiply whole numbers using the distributive property as a strategy. Learning Goal 2: Multiply one-digit whole numbers by applying the properties of operations (commutative, associative, and distributive properties). Learning Goal 3: Use tiling and an area model to represent the distributive property.

and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.		
● 3.MD.C.7. Relate area to the operations of multiplication and addition. 3.MD.C.7d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● Areas of rectilinear figures can be determined by decomposing them into non-overlapping rectangles and adding the areas of the parts. Students are able to: ● decompose rectilinear figures into non-overlapping rectangles. ● find areas of non-overlapping rectangles and add to find the area of the rectilinear figure. ● solve real world problems involving area of rectilinear figures. Learning Goal 4: Solve real-world problems involving finding areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts.
● 3.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Concept(s): No new concept(s) introduced Students are able to: ● multiply and divide <u>within 40</u> with accuracy and efficiency.

two one-digit numbers. *(benchmarked)		Learning Goal 5: Fluently multiply and divide <u>within 40</u> using strategies such as the relationship between multiplication and division.
● 3.OA.D.8. Solve two-step word problems using the four operations. 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. *(benchmarked)	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP 4. Model with mathematics MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	Concept(s): ● Letters or symbols in an equation represent an unknown quantity. Students are able to: ● represent the solution to two-step word problems with equations. ● use a symbol to represent an unknown in an equation. ● use rounding as an estimation strategy. ● explain, using an estimation strategy, whether an answer is reasonable. Learning Goal 6: Write equations when solving two-step word problems, using a symbol for an unknown; find the value of an unknown in an equation involving any of the four operations and use estimation strategies to assess the reasonableness of answers.
● 3.OA.D.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can*	MP.3 Construct viable arguments and critique the reasoning of others. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Concept(s): ● Addition and multiplication tables reveal arithmetic patterns. ● Patterns may be related to whether a number is even or odd. ● Patterns exist in rows, columns and diagonals of addition tables and multiplication tables. ● Decomposing numbers into equal addends may reveal patterns. Students are able to:

be decomposed into two equal addends.		• explain arithmetic patterns using properties of operations. Learning Goal 7: Recognize arithmetic patterns, including patterns in addition or multiplication tables, and explain the patterns using properties of operations.
• 3.NBT.A.2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)	MP 2 Reason abstractly and quantitatively.	Concept(s): No new concept(s) introduced Students are able to: • add and subtract two 2-digit whole numbers <u>within 100</u> with accuracy and efficiency. Learning Goal 8: Fluently add and subtract (with regrouping) two 2-digit whole numbers <u>within 100.</u>
• 3.NF.A.1. Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*. Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.] • 3.G.A.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts having equal area and describe*	MP 2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): • Wholes, when partitioned into equal parts, contain parts representing a unit fraction and each part is the same size. • Each part has the same name and represents a unit fraction (one-half, one-third, one-fourth, one-sixth, one-eighth). • The denominator is the total number of parts in the whole. • The numerator is the number of parts in a given fraction. • Fraction 1/*b* is the quantity formed by 1 part when a whole is partitioned into *b* equal parts. • Fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b* (e.g. 10/2 is 10 parts and each part is of size ½). Students are able to:

the area of each part as 1/4 of the area of the shape.		• partition rectangles, and other shapes, into halves, thirds, fourths, sixths and eighths. • identify the fractional name of each part. • model and explain that a fraction *a*/*b* is the quantity formed by *a* parts of size 1/*b* (For example, 10/2 is 10 parts and each part is of size ½). Learning Goal 9: Partition shapes into parts with equal areas and express the area of each part as a unit fraction; interpret the unit fraction 1/b as the quantity formed by 1 of b equal parts of a whole and the fraction a/b as the quantity formed by a parts of size 1/b.

Unit 2 Overview (Modeling Multiplication, Division and Fractions)	
Content Area	Mathematics
Unit Title	Modeling Multiplication, Division and Fractions
Grade Level	Grade 3
Recommended Pacing	APX: 45 Days
Unit Summary	In this unit of study students will multiply using strategies, use multiplication facts and understand division.
Interdisciplinary Connections	Primary Interdisciplinary Connections: Science, ELA
21st Century Themes/Career Ready Practices • Communicating with students	CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions.

• Using questioning and discussion techniques • Engaging students in learning • Using assessment in instruction • Demonstrating Flexibility and Responsiveness	CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.
Core Instructional Materials	enVisions Math Pearson Realize IXL GSuite for Education Projector Internet resources Activity handouts from the teacher Presentations via technology including educational videos on Safari and youtube.com · Subject software Internet resources Presentations via technology, including documentaries and videos from Safari, youtube.com and teacher-created materials.

Standard(s)/Mathematical Concepts
Mathematical Practice Standards: • MP1: Make sense of problems and persevere in solving them. • MP2: Reason abstractly and quantitatively • MP3: Construct viable arguments and critique the reasoning of others. • MP4: Model with mathematics. • MP5: Use appropriate tools strategically. • MP6: Attend to precision. • MP7: Look for and make use of structure. • MP8: Look for and express regularity in repeated reasoning. Technology Standards:

- 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.Assess the credibility and accuracy of digital content.
- 8.2 Technology Education, Engineering, Design and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Progress Indicator(s) #	Progress Indicator Defined
RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
RI.3.4	Determine the meaning of general academic and domain specific words and phrases in a text relevant to a grade three topic or subject area.
RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
8.1.P.A.1	Use an input device to select an item and navigate the screen
8.1.P.A.2	Navigate the basic functions of a browser
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums)
8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems
8.1.5.A.3	Use a graphic organizer to organize information about problem or issue

8.2.2.C.1	Brainstorm ideas on how to solve a problem or build a product.
8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
8.1.5.A.2	Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.
8.1.5.A.3	Use a graphic organizer to organize information about problem or issue.
8.1.P.A.3	Use digital devices to create stories with pictures, numbers, letters, and word
8.1.P.A.4	Use basic technology terms in the proper context in conversation with peers and teachers (e.g., camera, tablet, internet, mouse, keyboard, and printer.)
3.OA.A.3.	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. *(benchmarked)
3.OA.B.5.	Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5× 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 =16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)* *[Students need not use the formal terms for these properties.] *[Limit to single digit factors and multipliers. 7 x 4 x 5 would exceed grade 3 expectations because it would result in a two-digit multiplier (28 x 5)]
3.MD.C.7.	Relate area to the operations of multiplication and addition.
3.MD.C.7c.	Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* × *b* and *a* × *c*. Use area models to represent the distributive property in mathematical reasoning.

3.MD.C.7.	Relate area to the operations of multiplication and addition.
3.MD.C.7d.	Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
3.OA.C.7.	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)
3.OA.D.8.	Solve two-step word problems using the four operations. 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. *(benchmarked)
3.OA.D.9.	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *example, observe that 4 times a number is always even, and explain why 4 times number can be decomposed into two equal addends.*
3.NBT.A.2.	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)
3.NF.A.1.	Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*. *[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]

3.G.A.2.	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts having equal area and describe the area of each part as 1/4 of the area of the shape.*

District/School Formative Assessment Plan	District/School Summative Assessment Plan
Formative assessment informs instruction and is ongoing throughout a unit to determine how students are progressing against the standards. ● Mathematical Vocabulary Activities ● Assessment Item Analysis ● UDL Menu ● Do Now / Exit Ticket ● Teacher / Student Questioning ● Class / Small Group Discussion ● Organizers ● Peer / Self Assessment ● Visual Presentations ● Think Pair Share ● Teacher Observation / Anecdotal Records ● Computer Based Applications/Programs ● Practice Presentations ● Homework Activities	*Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.* ● Unit Test 2 Assessment 1 (Pre Progress Reporting Period 1) ● Unit Test 2 Assessment 2 ● Teacher Constructed Standards Based Quiz 1(Pre Progress Reporting Period 1) ● Teacher Constructed Standards Based Quiz 2 ● Alternative Assessment Teacher Constructed 1 (Pre Progress Reporting Period 1) ● Alternative Assessment Teacher Constructed 2
District/School Writing Tasks	
Primary Focus *This is connected to the types of writing as indicated in the standards:* ● Informational/Explanatory ● Research	**Routine Writing** *This is daily writing or writing that is done several times over a week.* ● Text Dependent Writing (TDQ) ● Quickwrites ● Routine Writing

Unit Essential Questions
• How can you add and subtract whole numbers and decide if an answer is reasonable? • How can you use multiplication facts, place value, and properties to solve multiplication problems? • How can you use division to find how many in each group or how many in equal groups?
Unit Enduring Understandings
• Multiply using strategies • Use multiplication facts • Understand division • Represent and solve problems involving multiplication and division. • Understand properties of multiplication and the relationship between multiplication and division. • Multiply and divide within 100. • Solve problems involving the four operations, and identify and explain patterns in arithmetic. • Use place value understanding and properties of operations to perform multi-digit arithmetic.
Key Vocabulary
• Associative Property of Multiplication • Distribute Property • Multiple • Commutative Property of Multiplication • Counting number • Identity Property of Multiplication • Zero Property of Multiplication • Equation • Commutative Property of Multiplication • Distributive Property • Multiple • Pattern • Place value

- Divide
- Dividend
- Divisor
- Inverse operation
- Quotient
- Related facts

Unit Learning Targets (Students will do…)

- Draw a picture, count by 2s, or use doubles to multiply with the factors 2 and 4.
- Use skip counting, a number line, or a bar model to multiply with the factors 5 and 10.
- Draw a picture, use 5s facts and addition, doubles, or a multiplication table to multiply with the factors 3 and 6.
- Use the Distributive Property to find products by breaking apart arrays.
- Use the Commutative or Distributive Property or known facts to multiply with the factor of 7.
- Use the Associative Property of Multiplication to multiply with three factors.
- Identify and explain patterns on the multiplication table.
- Use doubles, a number line, or the Associative Property of Multiplication to multiply with the factor of 8.
- Use the Distributive Property with addition or subtraction or patterns to multiply with the factor 9.
- Solve multiplication problems by using the strategy make a table.
- Identify and describe a number pattern shown in a function table.
- Use an array or multiplication table to find an unknown factor.
- Solve multiplication problems by using the strategy drawn a diagram.
- Use base-ten blocks, a number line, or place value to multiply with multiples of 10.
- Model and record multiplication
- Solve division problems by using the strategy act it out.
- Use models to explore the meaning of partitive (sharing) division.
- Use models to explore the meaning of quotative (measurement) division.
- Model division by using equal groups and bar models.

- Use repeated subtraction and a number line to relate subtraction to division.
- Model division by using arrays.
- Use bar models and arrays to relate multiplication and division as inverse operations.
- Write related multiplication and division facts.
- Divide using the rules for 1 and 0.

Instructional Best Practices and Exemplars
Instructional Best Practices and Exemplars **Instructional Best Practices** **(Please see information in attached link)**

Unit 3 Grade 3		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 3.NF.A.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram. 3.NF.A.2a. Represent a fraction 1/*b* on a number	MP.5 Use appropriate tools strategically.	Concept(s): ● Fraction is a number and has its place on the number line. ● When placing unit fractions on a number line, the space between 0 and 1 is the whole and must be partitioned into equal parts. ● Each part of a whole has the same size (one-half, one-third, one-fourth, one-sixth or one-eighth).

line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line. 3.NF.A.2b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line. *[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]		• Parts of the whole that begin at 0 and ends at 1/b on the number line is the location of fraction 1/b (one-half, one-third, one-fourth, one-sixth, or one-eighth). Students are able to: • partition a number line into parts of equal sizes between 0 and 1 (halves, thirds, fourths sixths and eighths). • plot unit fractions on the number line. • identify multiple parts (of length 1/b) on the number line. • plot a fraction on the number line by marking off multiple parts of size 1/b. • plot fractions equivalent to whole numbers including 0 and up to 5. Learning Goal 1: Draw a number line depicting the position of 1/b (with b = 2, 3, 4, 6, or 8); represent the unit fraction ¼ on the number line by partitioning the number line between 0 and 1 into 4 equal lengths and name the point at the end of the first length as the position of the unit fraction ¼; apply the same method for placing points 1/2, 1/3, 1/6, and 1/8 on the number line. Learning Goal 2: Draw a number line depicting the position of fraction *a*/*b* (with *b* = 2, 4, 3, 6, or 8, and including whole numbers up to 5).
• 3.NF.A.3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size 3.NF.A.3a. Understand two fractions as equivalent (equal) if they are the same	MP 2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics.	Concept(s): • Comparing fractions, each referencing the same *whole*. • Fractions are equivalent if they are the same size. • Fractions are equivalent if they are at the same point on a number line. Students are able to:

size, or the same point on a number line. 3.NF.A.3b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model. 3.NF.A.3c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* 3.NF.A.3d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	• find equivalent fractions (limited to fractions with denominators 2, 3, 4, 6, and 8). • explain why two fractions are equivalent; use a visual fraction model to support explanation. • write whole numbers as fractions. • identify fractions that are equivalent to whole numbers. • compare two fractions having the same numerator by reasoning about their size. • compare two fractions having the same denominator by reasoning about their size. • explain why comparing fractions that do not have the same whole is not valid (reason about their size and support reasoning with a model). • use <, =, and > symbols to write comparisons of fractions and justify conclusions with a visual fraction model. Learning Goal 3: Generate simple equivalent fractions, explain why they are equivalent, and support the explanation with visual fraction models; locate them on the number line. Learning Goal 4: Express whole numbers as fractions, identify fractions equivalent to whole numbers and locate them on the number line. Learning Goal 5: Compare two fractions having the same numerator; compare two fractions having the same denominator; reason about their size and use the symbols >, =, or < to record the comparison.

*[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]		
• 3.MD.A.1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes. (e.g., by representing the problem on a number line diagram)	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): • Analog clocks represent hours as numbers and minutes are represented as tick marks. Students are able to: • tell time to the nearest minute using digital and analog clocks. • write time to the nearest minute using analog clocks. • choose appropriate strategies to solve real world problems involving time. • use the number line as a visual model to determine intervals of time as *jumps* on a number line. • measure time intervals. Learning Goal 6: Tell and write time to the nearest minute, and solve word problems with addition and subtraction involving time intervals in minutes.
• 3.MD.A.2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units.	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): • Mass may be measured in grams and kilograms. • Mass is measured by weighing. • Volume may be measured in liters. • Volume may be measured with instruments such as beakers. Students are able to: • measure and read a scale to estimate volume. • measure and read a scale to estimate mass.

	MP.6 Attend to precision.	● add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes. Learning Goal 7: Solve one step word problems by estimating and measuring volume and mass using appropriate tools and standard units of grams, kilograms, and liters.
● 3.G.A.1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals.	MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● Shapes in different categories share attributes. ● Quadrilaterals are closed figures with four sides. ● Rhombuses, rectangles, etc, and other quadrilaterals share attributes. Students are able to: ● classify and sort shapes by attributes. ● explain why rhombuses, rectangles, and squares are examples of quadrilaterals. ● draw examples of quadrilaterals. Learning Goal 9: Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
● 3.MD.D.8. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): ● Perimeter of a figure is equivalent to the sum of the length of all of the sides. ● Rectangles that have same perimeter can have different areas. ● Rectangles that have same area can have different perimeters. Students are able to: ● determine the perimeter of various plane shapes and irregular shapes given the side lengths. ● determine the unknown side length give the perimeter and other sides.

		• show rectangles having the same perimeter and different areas. • show rectangles having different perimeters and the same area. Learning Goal 10: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
• 3.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Concept(s): No new concept(s) introduced Students are able to: • multiply and divide <u>within 100</u> with accuracy and efficiency. Learning Goal 8: Fluently multiply and divide <u>within 100</u> using strategies such as the relationship between multiplication and division.

Unit 3 Overview (Fractions as Numbers and Measurement)	
Content Area	Mathematics
Unit Title	Fractions as Numbers and Measurement
Grade Level	Grade 3

Recommended Pacing	APX: 45 Days
Unit Summary	In this unit of study students will use multiplication and division within 100 to solve word problems, determine the unknown whole number in a multiplication or division equation, multiply and divide within 100, solve two-step word problems and understand a fraction as a number on a number line.
Interdisciplinary Connections	Primary Interdisciplinary Connections: Science, ELA
21st Century Themes/Career Ready Practices • Communicating with students • Using questioning and discussion techniques • Engaging students in learning • Using assessment in instruction • Demonstrating Flexibility and Responsiveness	CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.
Core Instructional Materials	enVisions Math Pearson Realize IXL GSuite for Education Projector Internet resources Activity handouts from the teacher Presentations via technology including educational videos on Safari and youtube.com · Subject software Internet resources Presentations via technology, including documentaries and videos from Safari, youtube.com and teacher-created materials.

Standard(s)/Mathematical Concepts

Mathematical Practice Standards:

- MP1: Make sense of problems and persevere in solving them.
- MP2: Reason abstractly and quantitatively
- MP3: Construct viable arguments and critique the reasoning of others.
- MP4: Model with mathematics.
- MP5: Use appropriate tools strategically.
- MP6: Attend to precision.
- MP7: Look for and make use of structure.
- MP8: Look for and express regularity in repeated reasoning.

Technology Standards:

- 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.Assess the credibility and accuracy of digital content.

- 8.2 Technology Education, Engineering, Design and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Progress Indicator(s) #	Progress Indicator Defined
RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
RI.3.4	Determine the meaning of general academic and domain specific words and phrases in a text relevant to a grade three topic or subject area.

RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
8.1.P.A.1	Use an input device to select an item and navigate the screen
8.1.P.A.2	Navigate the basic functions of a browser
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums)
8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems
8.1.5.A.3	Use a graphic organizer to organize information about problem or issue
8.2.2.C.1	Brainstorm ideas on how to solve a problem or build a product.
8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
8.1.5.A.2	Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.
8.1.5.A.3	Use a graphic organizer to organize information about problem or issue.
8.1.P.A.3	Use digital devices to create stories with pictures, numbers, letters, and word
8.1.P.A.4	Use basic technology terms in the proper context in conversation with peers and teachers (e.g., camera, tablet, internet, mouse, keyboard, and printer.)
3.NF.A.2.	Understand a fraction as a number on the number line; represent fractions on a number line diagram.

3.NF.A.2a.	Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.
3.NF.A.2b.	Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line. *[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]
3.NF.A.3.	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
3.NF.A.3a.	Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
3.NF.A.3b.	Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.
3.NF.A.3c.	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*
3.NF.A.3d.	Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. *[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]

3.MD.A.1.	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes. (e.g., by representing the problem on a number line diagram)
3.MD.A.2.	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units.
3.G.A.1.	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals.
3.MD.D.8.	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
3.OA.C.7.	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)

District/School Formative Assessment Plan	District/School Summative Assessment Plan
Formative assessment informs instruction and is ongoing throughout a unit to determine how students are progressing against the standards. ● Mathematical Vocabulary Activities ● Assessment Item Analysis ● UDL Menu ● Do Now / Exit Ticket ● Teacher / Student Questioning	*Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.* ● Unit Test 3 Assessment 1 (Pre Progress Reporting Period 1) ● Unit Test 3 Assessment 2 ● Teacher Constructed Standards Based Quiz 1(Pre Progress Reporting Period 1) ● Teacher Constructed Standards Based Quiz 2

• Class / Small Group Discussion • Organizers • Peer / Self Assessment • Visual Presentations • Think Pair Share • Teacher Observation / Anecdotal Records • Computer Based Applications/Programs • Practice Presentations • Homework Activities	• Alternative Assessment Teacher Constructed 1 (Pre Progress Reporting Period 1) • Alternative Assessment Teacher Constructed 2

District/School Writing Tasks	
Primary Focus *This is connected to the types of writing as indicated in the standards:* • Informational/Explanatory • Research	**Routine Writing** *This is daily writing or writing that is done several times over a week.* • Text Dependent Writing (TDQ) • Quickwrites • Routine Writing

Unit Essential Questions
• What strategies can you use to divide by 2, 10, 5, 3, 4, 6, 7, 8, and 9? • How can you use the strategy act it out to solve two-step problems? • Why are there rules such as the order of operations? • What are equal parts of a whole? • Why do you need to know how to make equal shares? • What do the top and bottom numbers of a fraction tell? • How does a fraction name part of a whole? • How can you represent and locate fractions on a number line?

- When might you use a fraction greater than 1 or a whole number?
- How can a fraction name part of a group?
- How can a fraction tell how many are in part of a group?
- How can you use the strategy draw a diagram to solve fractional problems?
- How can you use the strategy act it out to solve comparison problems?
- How can you compare fractions with the same denominator?
- How can you compare fraction with the same numerator?
- What strategies can you use to compare fractions?
- How can you compare and order fractions?
- How can you use models to find equivalent fractions?
- How can you use models to name equivalent fractions?

Unit Enduring Understandings

- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \_ \div 3$, $6 \times 6 = ?$
- Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
- Solve two-step word problems using the four operations. 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.
- Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a part of size 1/b.
- Understand a fraction as a number on a number line; represent fractions on a number line diagram.
    - a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line.
    - b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.
- Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
    - a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

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

Key Vocabulary

- dividend
- divisor
- factor
- product
- array
- order of operations
- eighths, equal parts, fourths, halves, sixths, thirds, whole
- fraction, unit fraction
- denominator, numerator
- fraction greater than 1
- compare, equal to (=), greater than (>), less than (<)
- denominator
- numerator
- order
- equivalent, equivalent fractions

Unit Learning Targets (Students will do…)

- Use models to represent division by 2.
- Use repeated subtraction, a number line, or a multiplication table to divide by 10.
- Count up by 5s, count back on a number line, or use 10s facts and doubles to divide by 5.
- Use equal groups, a number line, or a related multiplication fact to divide by 3.
- Use an array, equal groups, factors, or a related multiplication fact to divide by 4.
- Use equal groups, a related multiplication fact, or factors to divide by 6.
- Use an array, a related multiplication fact, or equal groups to divide by 7.

- Use repeated subtraction, a related multiplication fact, or a multiplication table to divide by 8.
- Use equal groups, factors, or a related multiplication fact to divide by 9.
- Solve two-step problems by using the strategy act it out.
- Perform operations in order when there are no parentheses.
- Explore and identify equal parts of a whole.
- Divide models to make equal shares.
- Use a fraction to name one part of a whole that is divided into equal parts.
- Read, write, and model fractions that represent more than one part of a whole that is divided into equal parts.
- Represent and locate fractions on a number line.
- Relate fractions and whole numbers by expressing whole numbers as fractions and recognizing fractions that are equivalent to whole numbers.
- Model, read, and write fractional parts of a group.
- Find fractional parts of a group using unit fractions.
- Solve fraction problems by using the strategy draw a diagram.
- Solve comparison problems by using the strategy act it out.
- Compare fractions with the same denominator by using models and reasoning strategies.
- Compare fractions with the same numerator by using models and reasoning strategies.
- Compare fractions by using models and strategies involving the size of the pieces in the whole.
- Compare and order fractions by using models and reasoning strategies.
- Model equivalent fractions by folding paper, using area models, and using number lines.
- Generate equivalent fractions by using models.

Instructional Best Practices and Exemplars
Instructional Best Practices and Exemplars **Instructional Best Practices** **(Please see information in attached link)**

Unit 4 Grade 3		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 3.MD.B.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics.	Concept(s): ● Graphs organize information and contain labels. ● Pictures and bars can represent numbers in graphs. ● Different graphs may display different scales. Students are able to: ● draw scaled picture graphs. ● draw scaled bar graphs. ● analyze, interpret and create bar graphs and pictographs in real world situations. ● solve "how many more" and "how many less" problems using scaled bar graphs. Learning Goal 1: Draw scaled picture and scaled bar graphs to represent data with several categories. Solve one and two-step word problems using scaled bar graphs.

● 3.MD.B.4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.	MP 2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically.	Concept(s): ● Show measurements on a line plot displays the information in an organized way Students are able to: ● measure length using rulers marked with inch, quarter inch and half inch ● generate measurement data by measuring length and create a line plot of the data ● accurately measure several small objects using a standard ruler and display findings on a line plot ● display data on line plots with horizontal scales in whole numbers, halves, and quarters Learning Goal 2: Depict data measured in fourths and halves of an inch with a line plot with scales marked with appropriate units
● 3.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Concept(s): No new concept(s) introduced Students are able to: ● multiply and divide <u>within 100</u> with accuracy and efficiency. Learning Goal 3: Fluently multiply and divide <u>within 100</u> using strategies such as the relationship between multiplication and division.
● 3.OA.D.8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the	MP.1 Make sense of problems and persevere in solving them.	Concept(s): ● A letter or variable in an equation represents an unknown quantity. Students are able to:

reasonableness of answers using mental computation and estimation strategies including rounding. *(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	• represent two-step word problems with equation(s) containing unknowns. • perform operations in the conventional order (no parentheses). • use rounding as an estimation strategy. • explain, using an estimation strategy, whether an answer is reasonable. Learning Goal 4: Write equation(s) containing an unknown and find the value of an unknown in an equation that is a representation of a two-step word problem (with any four operations)*;* use estimation strategies to assess the reasonableness of answers.
• 3.NBT.A.2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)	MP.2 Reason abstractly and quantitatively.	Concept(s): No new concept(s) introduced Students are able to: • add and subtract <u>within 1000</u> with accuracy and efficiency. Learning Goal 5: Fluently add and subtract <u>within 1000</u> using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
• 3.MD.C.7. Relate area to the operations of multiplication and addition. 3.MD.C.7d. Recognize area as additive. Find areas of rectilinear figures by decomposing	MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	Concept(s): • Areas of rectilinear figures can be determined decomposing the them into non-overlapping rectangles and adding the areas of the parts. Students are able to: • decompose rectilinear figures into non-overlapping rectangles.

them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. *(benchmarked)	MP.7 Look for and make use of structure.	• find areas of non-overlapping rectangles and add to find the area of the rectilinear figure. • solve real world problems involving area of rectilinear figures. Learning Goal 6: Solve real world problems involving finding areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts.

Unit 4 Overview (Representing Data)	
Content Area	Mathematics
Unit Title	Representing Data
Grade Level	Grade 3
Recommended Pacing	APX: 45 Days
Unit Summary	In this unit of study students will measure time, length, liquid volume, and mass, measure perimeter and area and understand two-dimensional shapes.
Interdisciplinary Connections	Primary Interdisciplinary Connections: Science, ELA
21st Century Themes/Career Ready Practices • Communicating with students • Using questioning and discussion techniques • Engaging students in learning	CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies.

• Using assessment in instruction • Demonstrating Flexibility and Responsiveness	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.
Core Instructional Materials	enVisions Math Pearson Realize IXL GSuite for Education Projector Internet resources Activity handouts from the teacher Presentations via technology including educational videos on Safari and youtube.com · Subject software Internet resources Presentations via technology, including documentaries and videos from Safari, youtube.com and teacher-created materials.

Standard(s)/Mathematical Concepts
Mathematical Practice Standards: • MP1: Make sense of problems and persevere in solving them. • MP2: Reason abstractly and quantitatively • MP3: Construct viable arguments and critique the reasoning of others. • MP4: Model with mathematics. • MP5: Use appropriate tools strategically. • MP6: Attend to precision. • MP7: Look for and make use of structure. • MP8: Look for and express regularity in repeated reasoning. Technology Standards: • 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.Assess the credibility and accuracy of digital content.

- 8.2 Technology Education, Engineering, Design and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Progress Indicator(s) #	Progress Indicator Defined
RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
RI.3.4	Determine the meaning of general academic and domain specific words and phrases in a text relevant to a grade three topic or subject area.
RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
8.1.P.A.1	Use an input device to select an item and navigate the screen
8.1.P.A.2	Navigate the basic functions of a browser
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums)
8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems
8.1.5.A.3	Use a graphic organizer to organize information about problem or issue
8.2.2.C.1	Brainstorm ideas on how to solve a problem or build a product.

8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
8.1.5.A.2	Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.
8.1.5.A.3	Use a graphic organizer to organize information about problem or issue.
8.1.P.A.3	Use digital devices to create stories with pictures, numbers, letters, and word
8.1.P.A.4	Use basic technology terms in the proper context in conversation with peers and teachers (e.g., camera, tablet, internet, mouse, keyboard, and printer.)
3.MD.B.3.	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*
3.MD.B.4.	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.
3.OA.C.7.	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)
3.OA.D.8.	Solve two-step word problems using the four operations. 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. *(benchmarked)
3.NBT.A.2.	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)

3.MD.C.7.	Relate area to the operations of multiplication and addition.
3.MD.C.7d.	Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. *(benchmarked)

District/School Formative Assessment Plan	District/School Summative Assessment Plan
Formative assessment informs instruction and is ongoing throughout a unit to determine how students are progressing against the standards. ● Mathematical Vocabulary Activities ● Assessment Item Analysis ● UDL Menu ● Do Now / Exit Ticket ● Teacher / Student Questioning ● Class / Small Group Discussion ● Organizers ● Peer / Self Assessment ● Visual Presentations ● Think Pair Share ● Teacher Observation / Anecdotal Records ● Computer Based Applications/Programs ● Practice Presentations ● Homework Activities	*Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.* ● Unit Test 4 Assessment 1 (Pre Progress Reporting Period 1) ● Unit Test 4 Assessment 2 ● Teacher Constructed Standards Based Quiz 1(Pre Progress Reporting Period 1) ● Teacher Constructed Standards Based Quiz 2 ● Alternative Assessment Teacher Constructed 1 (Pre Progress Reporting Period 1) ● Alternative Assessment Teacher Constructed 2
District/School Writing Tasks	

Primary Focus *This is connected to the types of writing as indicated in the standards:* • Informational/Explanatory • Research	**Routine Writing** *This is daily writing or writing that is done several times over a week.* • Text Dependent Writing (TDQ) • Quickwrites • Routine Writing

Unit Essential Questions
• How can you tell time to the nearest minute? • How can you tell when to use A.M. and P.M. with time? • How can you measure elapsed time in minutes? • How can you find a starting time or an ending time when you know the elapsed time? • How can you use the strategy draw a diagram to solve problems about time? • How can you generate measurement data and show the data on a line plot? • How can you estimate and measure liquid volume in metric units? • How can you estimate and measure mass in metric units? • How can you use models to solve liquid volume and mass problems? • How can you find perimeter? • How can you measure perimeter? • How can you find the unknown length of a side in a plane figure when you know its perimeter? • How is finding the area of a figure different from finding the perimeter of a figure? • How can you find the area of a plane figure? • Why can you multiply to find the area of a rectangle? • How can you use the strategy find a pattern to solve area problems? • How can you break apart a figure to find the area? • How can you use area to compare rectangles with the same perimeter?

- How can you use perimeter to compare rectangles with the same area?
- What are some ways to describe two-dimensional shapes?
- How can you describe angles in plane shapes?
- How can you use line segments and angles to make polygons?
- How can you use sides and angles to help you describe quadrilaterals?
- How can you draw quadrilaterals?
- How can you use sides and angles to help you describe triangles?
- How can you use the strategy draw a diagram to classify plane shapes?
- How can you divide shapes into part with equal areas and write the area as a unit fraction of the whole?

Unit Enduring Understandings

- Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
- Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.
- Geometric measurement: understand concepts of area and relate area to multiplication and to addition. Recognize area as an attribute of plane figures and understand concepts of area measurement.
    - a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.
    - b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.
- Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
- Relate area to the operations of multiplication and addition.
    - a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
    - b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
    - c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

- Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Key Vocabulary

- Minute
- analog clock
- digital clock
- half hour
- hour
- quarter hour
- A.M.
- Midnight
- Noon
- P.M.
- elapsed time
- liquid volume, liter (L)
- gram (g), kilogram (kg), mass
- perimeter
- Area
- square unit
- unit square
- pattern
- distributive property
- closed shape
- endpoint
- line
- line segment
- open shape
- plane shape
- Point
- Ray
- two-dimensional shape
- angle
- right angle

- vertex
- decagon
- hexagon
- octagon
- pentagon
- polygon
- quadrilateral
- side
- triangle
- intersecting lines
- parallel lines
- perpendicular lines
- rectangle
- rhombus
- square
- trapezoid
- venn diagram

Unit Learning Targets (Students will do…)

- Read, write, and tell time on analog and digital clocks to the nearest minute.
- Decide when to use A.M. and P.M. when telling time to the nearest minute.
- Use a number line or an analog clock to measure time intervals in minutes.
- Use a number line or an analog clock to add or subtract time intervals to find starting times or ending times.
- Solve problems involving addition and subtraction of time intervals by using the strategy draw a diagram.
- Measure length to the nearest half or fourth inch and use measurement data to make a line plot.
- Measure length to the nearest half or fourth inch and use measurement data to make a line plot.
- Estimate and measure mass in grams and kilograms.

- Add, subtract, multiply, or divide to solve problems involving liquid volumes or masses.
- Explore perimeter of polygons by counting units on grid paper.
- Estimate and measure perimeter of polygons using inch and centimeter rulers.
- Find the unknown length of a side of a polygon when you know its perimeter.
- Explore perimeter and area as attributes of polygons.
- Estimate and measure area of plane figures by counting unit squares.
- Relate area to addition and multiplication by using area models.
- Solve area problems by using the strategy find a pattern.
- Apply the Distributive Property to area models and to find the area of combined rectangles.
- Compare areas of rectangles that have the same perimeter.
- Compare perimeters of rectangles that have the same area.
- Identify and describe attributes of plane shapes.
- Describe angles in plane shapes.
- Identify polygons by the number of sides they have
- Determine if lines or line segments are intersecting, perpendicular, or parallel.
- Describe, classify, and compare quadrilaterals based on their sides and angles.
- Draw quadrilaterals.
- Describe and compare triangles based on the number of sides that have equal length and by their angles.
- Solve problems by using the strategy draw a diagram to classify plane shapes.
- Partition shapes into parts with equal areas and express the area as a unit fraction of the whole.

Instructional Best Practices and Exemplars
Instructional Best Practices and Exemplars **Instructional Best Practices** **(Please see information in attached link)**

Modifications for SpEd/ESL/Students at Risk/Gifted

● Complete fewer or different homework problems than peers
● Write shorter papers
● Supports, Accommodations, and Modifications must be provided as stated in IEP, 504 Plan, or I&RS Intervention Plan, and may include (but are not limited to) the following:

Presentation accommodations:
● Listen to audio recordings instead of reading text
● Learn content from audio books, movies, videos and digital media instead of reading print versions
● Use alternate texts at lower readability level
● Work with fewer items per page or line and/or materials in a larger print size
● Use magnification device, screen reader, or Braille / Nemeth Code
● Use audio amplification device (e.g., hearing aid(s), auditory trainer, sound-field system (which may require teacher use of microphone)
● Be given a written list of instructions
● Record a lesson, instead of taking notes
● Have another student share class notes with him
● Be given an outline of a lesson
● Be given a copy of teacher's lecture notes
● Be given a study guide to assist in preparing for assessments
● Use visual presentations of verbal material, such as word webs and visual organizers
● Use manipulatives to teach or demonstrate concepts
● Have curriculum materials translated into native language

Response accommodations:

● Use sign language, a communication device, Braille, other technology, or native language other than English
● Dictate answers to a scribe
● Capture responses on an audio recorder
● Use a spelling dictionary or electronic spell-checker
● Use a word processor to type notes or give responses in class
● Use a calculator or table of “math facts”
● Respond directly in the test booklet rather than on an answer sheet. Setting accommodations:
● Work or take a test in a different setting, such as a quiet room with few distractions
● Sit where he learns best (for example, near the teacher, away from distractions)
● Use special lighting or acoustics
● Take a test in small group setting
● Use sensory tools such as an exercise band that can be looped around a chair’s legs (so fidgety kids can kick it and quietly get their energy out)
● Use noise buffers such as headphones, earphones, or earplugs

Timing accommodations:
● Take more time to complete a task or a test
● Have extra time to process oral information and directions
● Take frequent breaks, such as after completing a task

Scheduling accommodations:
● Take more time to complete a project
● Take a test in several timed sessions or over several days
● Take sections of a test in a different order
● Take a test at a specific time of day

Organization skills accommodations:
● Use an alarm to help with time management
● Mark texts with a highlighter
● Have help coordinating assignments in a book or planner
● Receive study skills instruction

Assignment modifications:

- Answer fewer or different test questions
- Create alternate projects or assignments

Curriculum modifications:
- Learn different material
- Get graded or assessed using a different standard than the one for classmates