Hainesport Township School District
211 Broad Street Hainesport, NJ 08036

Course Title: Math Grade 4
Board of Education Adoption Date: 8/23/2012
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Course Description and Concepts

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

Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.
Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., 15/9 = 5/3), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

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

Place Value & Operations with Whole Numbers	I	45 Days
Multi-digit Arithmetic & Fraction Equivalence	II	45 Days
Building Fractions & Decimal Notation	III	45 Days
Geometry and Measurement	IV	45 Days

Curricular Framework

Overview	**Standards for Mathematical Content**	**Unit Focus**	**Standards for Mathematical Practice**
Unit 1 **Place Value & Operations with Whole Numbers**	• 4.OA.B.4 • 4.OA.C.5 • 4.MD.A.1 • 4.OA.A.1 • 4.OA.A.2 • 4.NBT.A.1 • 4.NBT.A.2 • 4.NBT.A.3	• Gain familiarity with factors and multiples • Generate and analyze patterns • Solve problems involving measurement and conversion of measurements • Use the four operations with whole numbers to solve problems	MP.1 Make sense of problems and persevere in solving them.

		• Generalize place value understanding for multi-digit whole numbers	
Unit 1: ***Suggested Open Educational Resources***	4.OA.B Identifying Multiples 4.OA.B Numbers in a Multiplication Table 4.OA.C.5 Double Plus One 4.MD.A.1 Who is the tallest? 4.OA.A.2 Comparing Money Raised 4.NBT.A.1 Thousands and Millions of Fourth Graders 4.NBT.A.2 Ordering 4-digit numbers 4.NBT.A.3 Rounding on the Number Line		MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics.
Unit 2 **Multi-digit Arithmetic & Fraction Equivalence**	• 4.NBT.B.4* • 4.NBT.B.5 • 4.NBT.B.6 • 4.OA.A.3* • 4.MD.A.3 • 4.NF.A.1 • 4.NF.A.2 • 4.NF.B.3a-b	• Use place value understanding and properties of operations to perform multi-digit arithmetic • Use the four operations with whole numbers to solve problems • Solve problems involving measurement and conversion of measurements • Extend understanding of fraction equivalence and ordering. • Build fractions from unit fractions	MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.

Unit 2: ***Suggested Open Educational Resources***	4.NBT.B To regroup or not to regroup 4.NBT.B.6 mental Division Strategy 4.OA.A.3, 4.MD.A.3 Karl's Garden 4.NF.A.1 Explaining Fraction Equivalence with Pictures 4.NF.A.1 Fractions and Rectangles 4.NF.A.2 Comparing Fractions Using Benchmarks Game 4.NF.A.2 Doubling Numerators and Denominators 4.NF.B.3a Comparing Sums of Unit Fractions 4.NF.B.3b making 22 Seventeenths in Different Ways		MP.8 Look for and express regularity in repeated reasoning.
Unit 3 **Building Fractions & Decimal Notation**	• 4.NF.B.3c-d • 4.MD.B.4 • 4.NF.B.4a-c • 4.NF.C.5 • 4.NF.C.6 • 4.NF.C.7 • 4.MD.A.2 • 4.NBT.B.4*	• Build fractions from unit fractions • Represent and interpret data • Understand decimal notation for fractions and compare decimal fractions. • Solve problems involving measurement and conversion of measurements • Use place value understanding and properties of operations to add and subtract	MP.1 Make sense of problems and persevere in solving them.

Unit 3: ***Suggested Open Educational Resources***	4.NF.B.3c Cynthia's Perfect Punch 4.NF.B.3c Peaches 4.MD.B.4 Button Diameters 4.NF.B.4 Extending Multiplication From Whole Numbers to Fractions 4.NF.B.4c Sugar in six cans of soda 4.NF.C.5 Adding Tenths and Hundredths 4.NF.C.6 Dimes and Pennies 4.NF.C.6 Expanded Fractions and Decimals 4.NF.C.7 Using Place Value 4.MD.A.2 Margie Buys Apples		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. MP.7 Look for and make use of structure.
Unit 4 **Geometry and Measurement**	• 4.G.A.1 • 4.G.A.2 • 4.G.A.3 • 4.MD.C.5 • 4.MD.C.6 • 4.MD.C.7 • 4.OA.A.3* • 4.NBT.B.4*	• Draw and identify lines and angles, and classify shapes by properties of their lines and angles • Understand concepts of angle and measure angles (Geometric measurement) • Use the four operations with whole numbers to solve problems • Use place value understanding and properties of operations to perform multi-digit arithmetic	

Unit 4: ***Suggested Open Educational Resources***	4.G.A.1 The Geometry of Letters 4.G.A.1 What's the Point? 4.G.A.2 Are these right? 4.G.A.2 Defining Attributes of Rectangles and Parallelograms 4.G.A.3 Finding Lines of Symmetry 4.G.A.3 Lines of symmetry for triangles 4.MD.C.6, 4.MD.C.7, 4.G.A.1 Measuring Angles 4.MD.C.7, 4.G.A.2 Finding an unknown angle 4.OA.A.3 Carnival Tickets		MP.8 Look for and express regularity in repeated reasoning.

Unit 1 Grade 4		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
• 4.OA.B.4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concept(s): • Whole numbers are a multiple of each of its factors. • Prime numbers do not have factors other than 1 and the number itself.

given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	MP.8 Look for and express regularity in repeated reasoning.	Students are able to: ● find all factor pairs for any whole number (between 1 and 100). ● given a one-digit number, determine whether a given whole number (between 1 and 100) is a multiple of the one-digit number. ● determine whether a given whole number (between 1 and 100) is prime or composite. Learning Goal 1: Find all factor pairs for a whole number up to 100 and determine whether it is a multiple of a given 1-digit whole number and whether it is prime or composite.
● 4.OA.C.5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*	MP.8 Look for and express regularity in repeated reasoning.	Concept(s): ● Patterns contain features that are not explicitly stated in the rule defining the numerical pattern. Students are able to: ● produce number patterns from a given rule. ● produce shape patterns from a given rule. ● analyze a sequence of numbers in order to identify features that are not obvious explicitly stated in the rule. Learning Goal 2: Generate a number or shape pattern that follows a rule and identify features of the pattern that are not explicit in the rule.
● 4.MD.A.1. Know relative sizes of measurement units within one system of units including km, m,	MP.5 Use appropriate tools strategically.	Concept(s):

cm, mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36).*	MP.8 Look for and express regularity in repeated reasoning.	• Relative sizes of measurements (e.g. a kilometer is 1000 times as long as a meter and 100,000 times as long as a centimeter). Students are able to: • express measurements of a larger unit in terms of a smaller unit (within a single measurement system) (e.g. convert hours to minutes, kilometers to centimeters, etc). • generate a two-column table to record measurement equivalents. Learning Goal 3: Express measurement in a larger unit in terms of a smaller unit and record equivalent measures in a two-column table.
• 4.OA.A.1. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics.	Concept(s): • Multiplication equations represent comparisons. Students are able to: • explain multiplication equations as comparisons. • write multiplication equations given word problems indicating multiplicative comparison. Learning Goal 4: Write multiplication equations from word problems indicating multiplicative comparisons and describe multiplication equations as comparisons.
• 4.OA.A.2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown	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 multiplicative comparison.

number to represent the problem, distinguishing multiplicative comparison from additive comparison.	MP.5 Use appropriate tools strategically.	• divide to solve word problems involving multiplicative comparison. • represent problems with drawings and equations, using a symbol for the unknown number. • distinguish word problems involving multiplicative comparison from those involving additive comparison. Learning Goal 5: Multiply and divide to solve word problems involving multiplicative comparisons and represent these problems with drawings and equations.
• 4.NBT.A.1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.* [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]	MP.7 Look for and make use of structure.	Concept(s): • A quantitative relationship exists between the digits in place value positions of a multi-digit number. Students are able to: • Explain that a digit in one place represents ten times what it would represent in the place to its right. Learning Goal 6: For a whole number up to one million, explain that a digit in one place represents ten times what it would represent in the place to its right.
• 4.NBT.A.2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and <	MP.7 Look for and make use of structure.	Concept(s): • Multiple representations of whole numbers exist. Students are able to: • read and write multi-digit whole numbers using base-ten numerals. • read and write multi-digit whole numbers using number names.

symbols to record the results of comparisons. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]		• read and write multi-digit whole numbers using expanded form. • compare two multi-digit numbers using >, =, and < symbols. Learning Goal 7: Compare two multi-digit whole numbers (up to one million) using >, =, and < for numbers presented as base ten numerals, number names, and/or in expanded form.
• 4.NBT.A.3. Use place value understanding to round multi-digit whole numbers to any place. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]	MP.7 Look for and make use of structure.	Concept(s): • Estimation Students are able to: • round whole numbers to any place. Learning Goal 8: Round multi-digit whole numbers up to one million to any place.

Unit 1 Overview (Place Value & Operations with Whole Numbers)	
Content Area	Mathematics
Unit Title	Place Value & Operations with Whole Numbers
Grade Level	Grade 4
Recommended Pacing	APX: 45 Days

Unit Summary	In this unit of study students will gain familiarity with factors and multiples, generate and analyze patterns, solve problems involving measurement and conversion of measurements, use the four operations with whole numbers to solve problems and generalize place value understanding for multi-digit whole numbers.
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
4.OA.B.4.	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
4.OA.C.5.	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. (*For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.)*

4.MD.A.1.	Know relative sizes of measurement units within one system of units including km, m, cm, mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *(For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36))*
4.OA.A.1.	Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
4.OA.A.2.	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
4.NBT.A.1.	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *(For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.)* [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]
4.NBT.A.2.	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]
4.NBT.A.3.	Use place value understanding to round multi-digit whole numbers to any place. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]
RI.4.4	Determine the meaning of general academic and domain specific words or phrases in a text relevant to a grade 4 topic or subject area. (See grade 4 Language standards 4-6 for additional expectations.)

RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
RI.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
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.

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 do students find factor pairs for a whole number up to 100 and determine whether it is a multiple of a given 1-digit whole number and whether it is prime or composite?

- How will students generate a number or shape pattern that follows a rule and identify features of the pattern that are not explicit in the rule?
- How do students express measurement in a larger unit in terms of a smaller unit and record equivalent measures in a two-column table?
- How will students write multiplication equations from word problems indicating multiplicative comparisons and describe multiplication equations as comparisons?
- How will students multiply and divide to solve word problems involving multiplicative comparisons and represent these problems with drawings and equations?
- How will students be able to identify and develop a whole number up to one million, explain that a digit in one place represents ten times what it would represent in the place to its right?
- What strategies will students use to compare two multi-digit whole numbers (up to one million) using >, =, and < for numbers presented as base ten numerals, number names, and/or in expanded form?
- What strategies will students utilize to round multi-digit whole numbers up to one million to any place?

Unit Enduring Understandings

- Gain familiarity with factors and multiples.
- Generate and analyze patterns.
- Solve problems involving measurement and conversion of measurements.
- Use the four operations with whole numbers to solve problems.
- Generalize place value understanding for multi-digit whole numbers.

Key Vocabulary

- prime
- Composite
- factor pairs
- whole number
- number patterns
- shape pattern
- equivalents
- two-column table
- Base-ten
- expanded form

Unit Learning Targets (Students will do…)
● Find all factor pairs for any whole number (between 1 and 100). ● Given a one-digit number, determine whether a given whole number (between 1 and 100) is a multiple of the one-digit number. ● Determine whether a given whole number (between 1 and 100) is prime or composite. ● Produce number patterns from a given rule. ● Produce shape patterns from a given rule. ● Analyze a sequence of numbers in order to identify features that are not obvious explicitly stated in the rule. ● Express measurements of a larger unit in terms of a smaller unit (within a single measurement system) (e.g. convert hours to minutes, kilometers to centimeters, etc). ● Generate a two-column table to record measurement equivalents. ● Explain multiplication equations as comparisons. ● Write multiplication equations given word problems indicating multiplicative comparison. ● Multiply to solve word problems involving multiplicative comparison. ● Divide to solve word problems involving multiplicative comparison. ● Represent problems with drawings and equations, using a symbol for the unknown number. ● Distinguish word problems involving multiplicative comparison from those involving additive comparison. ● Explain that a digit in one place represents ten times what it would represent in the place to its right ● Multiple representations of whole numbers exist. ● Read and write multi-digit whole numbers using base-ten numerals. ● Read and write multi-digit whole numbers using number names. ● Read and write multi-digit whole numbers using expanded form. ● Compare two multi-digit numbers using >, =, and < symbols. ● Round whole numbers to any place.
Instructional Best Practices and Exemplars
Instructional Best Practices and Exemplars **Instructional Best Practices** **(Please see information in attached link)**

Unit 2 Grade 4		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
• 4.NBT.B.4. Fluently add and subtract multi-digit whole numbers using the standard algorithm. *[Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.] *(benchmarked)	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: • add multi-digit whole numbers using the standard algorithm with accuracy and efficiency. • subtract multi-digit whole numbers using the standard algorithm with accuracy and efficiency. Learning Goal 1: Fluently add and subtract multi-digit whole numbers using the standard algorithm.
• 4.NBT.B.5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]	MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: • multiply a whole number of up to four digits by a one-digit whole number using strategies based on place values. • multiply two two-digit numbers using strategies based on place value. • represent these operations with equations, rectangular arrays, and area models. • explain the calculation by referring to the model (equation, array, or area model).

		Learning Goal 2: Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers; represent and explain calculations using equations, rectangular arrays, and area models.
● 4.NBT.B.6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]	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: ● find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and the relationship between multiplication and division. ● represent these operations with equations, rectangular arrays, and area models. ● explain the calculation by referring to the model (equation, array, or area model). Learning Goal 3: Divide a whole number of up to four-digits by a one-digit divisor; represent and explain the calculation using equations, rectangular arrays, and area models.
● 4.OA.A.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics.	Concept(s): ● Proper use of the equal sign ● Improper use of the equal sign (e.g. 3 + 7 = 10 – 5 = 5 is incorrect) Students are able to: ● solve multi-step word problems involving any of the four operations.

unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *(benchmarked)	MP.7 Look for and make use of structure.	• solve multi-step word problems involving interpretation (in context) of a remainder. • write equations to represent multi-step word problems, using a letter to represent the unknown quantity. • explain why an answer is reasonable. • use mental computation and estimation strategies to determine whether an answer is reasonable. Learning Goal 4: Write and solve each equation (including any of the four operations) in order to solve multi-step word problems, using a letter to represent the unknown; interpret remainders in context and assess the reasonableness of answers using mental computation with estimation strategies.
• 4.MD.A.3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*	MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically.	Concept(s): No new concept(s) introduced Students are able to: • solve real world and mathematical problems by finding the area of rectangles using a formula. • solve real world and mathematical problems by finding the perimeter of rectangles using a formula. Learning Goal 5: Solve real world problems with whole numbers by finding the area and perimeter of rectangles using formulas.

• 4.NF.A.1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): • Equivalent fractions are the same size while the number and size of the parts differ. Students are able to: • explain, using visual fraction models, why two fractions are equivalent. • generate equivalent fractions, using fraction a/b as equivalent to fraction $(n \times a)/(n \times b)$. Learning Goal 6: Recognize and generate equivalent fractions and explain why they are equivalent using visual fraction models.
• 4.NF.A.2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): • Fractions may only be compared when the two fractions refer to the same whole. Students are able to: • create common denominators in order to compare two fractions. • create common numerators in order to compare two fractions. • compare two fractions with different numerators and different denominators by comparing to a benchmark fraction. • record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. Learning Goal 7: Compare two fractions with different numerators or different denominators, recording comparison

		with >, =, or <, and justifying the conclusion using visual fraction models.
• 4.NF.B.3. Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*. 4.NF.B.3a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. 4.NF.B.3b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	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. MP.7 Look for and make use of structure.	Concept(s): • Some fractions can be decomposed. • Addition/subtraction of fractions is joining/separating parts referring to the same whole. Students are able to: • decompose a fraction into a sum of fractions with the same denominator in more than one way. • write decompositions of fractions as an equation. • develop visual fraction models that represent decomposed fractions and use them to justify decompositions. Learning Goal 8: Decompose a fraction into a sum of fractions with the same denominator in more than one way and record the decomposition as an equation; justify the decomposition with a visual fraction model.

Unit 2 Overview (Multi-digit Arithmetic & Fraction Equivalence)	
Content Area	Mathematics
Unit Title	Multi-digit Arithmetic & Fraction Equivalence

Grade Level	Grade 4
Recommended Pacing	APX: 45 Days
Unit Summary	In this unit of study students will use place value understanding and properties of operations to perform multi-digit arithmetic, use the four operations with whole numbers to solve problems, solve problems involving measurement and conversion of measurements, extend understanding of fraction equivalence and ordering, build fractions from unit fractions, proper use of the equal sign, improper use of the equal sign, equivalent fractions are the same size while the number and size of the parts differ, fractions may only be compared when the two fractions refer to the same whole, some fractions can be decomposed and addition/subtraction of fractions is joining/separating parts referring to the same whole.
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.4.4	Determine the meaning of general academic and domain specific words or phrases in a text relevant to a grade 4 topic or subject area. (See grade 4 Language standards 4-6 for additional expectations.)

RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
RI.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
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.

4.NBT.B.4.	Fluently add and subtract multi-digit whole numbers using the standard algorithm. *[Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.] *(benchmarked)
4.NBT.B.5.	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]
4.NBT.B.6.	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]
4.OA.A.3.	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *(benchmarked)
4.MD.A.3.	Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*
4.NF.A.1.	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]

4.NF.A.2.	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]
4.NF.B.3.	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. 4.
NF.B.3a.	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
4.NF.B.3b.	Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]

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	*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

• Think Pair Share • Teacher Observation / Anecdotal Records • Computer Based Applications/Programs • Practice Presentations • Homework Activities	

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 will students develop fluency in the addition and subtraction of multi-digit whole numbers using the standard algorithm?
- How will students multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers; represent and explain calculations using equations, rectangular arrays, and area models?
- How will students divide a whole number of up to four-digits by a one-digit divisor; represent and explain the calculation using equations, rectangular arrays, and area models?
- How will students write and solve each an equation (including any of the four operations) in order to solve multi-step word problems, using a letter to represent the unknown; interpret remainders in context and assess the reasonableness of answers using mental computation with estimation strategies?
- How will students solve real world problems with whole numbers by finding the area and perimeter of rectangles using formulas?
- How will students recognize and generate equivalent fractions and explain why they are equivalent using visual fraction models?
- How will students compare two fractions with different numerators or different denominators, recording comparison with >, =, or <, and justifying the conclusion using visual fraction models?
- How will students decompose a fraction into a sum of fractions with the same denominator in more than one way and record the decomposition as an equation; justify the decomposition with a visual fraction model?

Unit Enduring Understandings
• Use place value understanding and properties of operations to perform multi-digit arithmetic • Use the four operations with whole numbers to solve problems • Solve problems involving measurement and conversion of measurements • Extend understanding of fraction equivalence and ordering. • Build fractions from unit fractions • Proper use of the equal sign • Improper use of the equal sign • Equivalent fractions are the same size while the number and size of the parts differ. • Fractions may only be compared when the two fractions refer to the same whole. • Some fractions can be decomposed. • Addition/subtraction of fractions is joining/separating parts referring to the same whole.
Key Vocabulary
• algorithm • efficiency • place value • arrays • divisors • operations • mental computation • estimation • common denominators • common numerators • fraction models
Unit Learning Targets (Students will do…)

- Add multi-digit whole numbers using the standard algorithm with accuracy and efficiency.
- Subtract multi-digit whole numbers using the standard algorithm with accuracy and efficiency.
- Multiply a whole number of up to four digits by a one-digit whole number using strategies based on place values.
- Multiply two two-digit numbers using strategies based on place value.
- Represent these operations with equations, rectangular arrays, and area models.
- Explain the calculation by referring to the model (equation, array, or area model).
- Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and the relationship between multiplication and division.
- Represent these operations with equations, rectangular arrays, and area models.
- Explain the calculation by referring to the model (equation, array, or area model).
- Solve multi-step word problems involving any of the four operations.
- Solve multi-step word problems involving interpretation (in context) of a remainder.
- Write equations to represent multi-step word problems, using a letter to represent the unknown quantity.
- Explain why an answer is reasonable.
- Use mental computation and estimation strategies to determine whether an answer is reasonable.
- Solve real world and mathematical problems by finding the area of rectangles using a formula.
- Solve real world and mathematical problems by finding the perimeter of rectangles using a formula.
- Explain, using visual fraction models, why two fractions are equivalent.
- Generate equivalent fractions, using fraction a/b as equivalent to fraction $(n \times a)/(n \times b)$.
- Create common denominators in order to compare two fractions.
- Create common numerators in order to compare two fractions.
- Compare two fractions with different numerators and different denominators by comparing to a benchmark fraction.
- Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model
- Decompose a fraction into a sum of fractions with the same denominator in more than one way.
- Write decompositions of fractions as an equation.
- Develop visual fraction models that represent decomposed fractions and use them to justify decompositions

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

Unit 3 Grade 4		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 4.NF.B.3. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. 4.NF.B.3c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. 4.NF.B.3d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	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. MP.7 Look for and make use of structure.	Concept(s): ● Some fractions can be decomposed. ● Addition/subtraction of fractions is joining/separating parts referring to the same whole. Students are able to: ● add and subtract fractions having like denominators in order to solve real world problems. ● develop visual fraction models and write equations to represent real world problems involving addition and subtraction of fractions. ● add and subtract mixed numbers with like denominators. Learning Goal 1: Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction or improper fraction.

[Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]		Learning Goal 2: Solve word problems involving addition and subtraction of fractions having like denominators using visual fraction models and equations to represent the problem.
• 4.MD.B.4. Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): No new concept(s) introduced Students are able to: • given a data set consisting of measurements in fractions of a unit, create a line plot. • using measurement information presented in line plots, add and subtract fractions with like denominators in order to solve problems. Learning Goal 3: Make a line plot to display a data set in measurements in fractions of a unit (1/2, 1/4, 1/8) and use it to solve problems involving addition and subtraction of fractions with like denominators.
• 4.NF.B.4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. 44.NF.B.4a. Understand a fraction *a*/*b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* 4.F.4.B.4b. Understand a multiple of *a*/*b* as a multiple of 1/*b*, and use this understanding	MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): • Fraction Multiplication: any fraction *a*/*b* as a multiple of fraction 1/*b*. • Fraction Multiplication: any multiple of fraction *a*/*b* is also a multiple of fraction 1/*b*. Students are able to: • represent *a*/*b* as a x (1/*b*) using a visual fraction model. • represent *n* × *(a/b) as (n* × *a)/b* in a visual fraction model. • multiply a fraction by a whole number.

to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)* 4.NF.4.B.4c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]		• solve real world problems by multiplying a fraction by a whole number, using visual fraction models and equations to represent the problem. Learning Goal 4: Multiply a fraction by a whole number using visual fraction models and equations, demonstrating a fraction *a/b* as a multiple of 1/*b*. Learning Goal 5: Multiply a fraction by a whole number, using a visual fraction model and equations to demonstrate that a multiple of *a/b* is the product of 1/*b* and a whole number. Learning Goal 6: Solve 1-step word problems involving multiplication of a fraction by a whole number, using visual fraction models and equations to represent the problem
• 4.NF.C.5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*	MP.7 Look for and make use of structure.	Concept(s): • Equivalent Fractions Students are able to: • add two fractions with respective denominators of 10 and 100 using equivalent fractions.

[Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]		Learning Goal 7: Add two fractions with respective denominators of 10 and 100 by writing each fraction with denominator 100.
• 4.NF.C.6. Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	MP.7 Look for and make use of structure.	Concept(s): • Relationship between place value (decimals) and fraction Students are able to: • write a decimal as a fraction that has a denominator of 10 or 100. Learning Goal 8: Given decimal notation, write fractions having denominators of 10 or 100.
• 4.NF.C.7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: • represent a decimal using a model. • compare two decimals to hundredths by reasoning about their size. • explain that comparisons are valid only when the two decimals refer to the same whole. • record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual model). Learning Goal 9: Compare two decimals to hundredths by reasoning about their size, demonstrating that comparisons are valid only when the two decimals refer to the same whole;

		record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.
● 4.MD.A.2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): No new concept(s) introduced Students are able to: ● solve word problems (using addition, subtraction and multiplication) involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals. ● solve word problems (using all four operations) involving whole number distances, intervals of time, liquid volumes, masses of objects, and money, including problems requiring expressing measurements given in a larger measurement unit in terms of a smaller measurement unit (conversion). ● construct diagrams (e.g. number line diagrams) to represent measurement quantities. Learning Goal 10: Solve word problems involving simple fractions or decimals that incorporate measurement comparisons of like units (including problems that require measurements given in a larger unit in terms of a smaller unit).
● 4.NBT.B.4. Fluently add and subtract multi-digit whole numbers using the standard algorithm. [Grade 4 expectations in this domain are limited to whole	MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● add using the standard algorithm with accuracy and efficiency.

numbers less than or equal to 1,000,000.] *(benchmarked)		• subtract using the standard algorithm with accuracy and efficiency. Learning Goal 11: Fluently add and subtract multi-digit whole numbers using the standard algorithm.

Unit 3 Overview (Building Fractions & Decimal Notation)	
Content Area	Mathematics
Unit Title	Building Fractions & Decimal Notation
Grade Level	Grade 4
Recommended Pacing	APX: 45 Days
Unit Summary	In this unit of study students will build fractions from unit fractions, represent and interpret data, understand decimal notation for fractions and compare decimal fractions, solve problems involving measurement and conversion of measurements, use place value understanding and properties of operations to add and subtract, some fractions can be decomposed, addition/subtraction of fractions is joining/separating parts referring to the same whole, fraction multiplication and any fraction *a*/*b* as a multiple of fraction 1/*b,* fraction multiplication of any multiple of fraction *a*/*b* is also a multiple of fraction 1/*b* and relationship between place value (decimals) and fractions.
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.4.4	Determine the meaning of general academic and domain specific words or phrases in a text relevant to a grade 4 topic or subject area. (See grade 4 Language standards 4-6 for additional expectations.)
RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
RI.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
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.
4.NF.B.3.	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
4.NF.B.3c.	Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
4.NF.B.3d.	Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]
4.MD.B.4.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*
4.NF.B.4.	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
4.NF.B.4a.	Understand a fraction a/b as a multiple of $1/b$.

	For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).
4.F.4.B.4b.	Understand a multiple of *a*/*b* as a multiple of 1/*b*, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*
4.NF.4.B.4c.	Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]
4.NF.C.5.	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]
4.NF.C.6.	Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]
4.NF.C.7.	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]

4.MD.A.2.	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
4.NBT.B.4.	Fluently add and subtract multi-digit whole numbers using the standard algorithm. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.] *(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 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 ● 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 will students add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction or improper fraction?
- How will students solve word problems involving addition and subtraction of fractions having like denominators using visual fraction models and equations to represent the problem?
- What methods will students utilize to make a line plot to display a data set in measurements in fractions of a unit (1/2, 1/4, 1/8) and use it to solve problems involving addition and subtraction of fractions with like denominators?
- What methods will students utilize to multiply a fraction by a whole number using visual fraction models and equations, demonstrating a fraction *a/b* as a multiple of 1*/b.*
- What methods will students utilize multiply a fraction by a whole number, using a visual fraction model and equations to demonstrate that a multiple of *a/b* is the product of 1*/b* and a whole number.
- How will students solve a 1-step word problems involving multiplication of a fraction by a whole number, using visual fraction models and equations to represent the problem?
- What methods will students utilize to add two fractions with respective denominators of 10 and 100 by writing each fraction with denominator 100?
- How will student develop decimal notation, write fractions that have a denominator of 10 or 100?
- What methods will students utilize to compare two decimals to hundredths by reasoning about their size, demonstrating that comparisons are valid only when the two decimals refer to the same whole; record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model?
- How will students solve word problems involving simple fractions or decimals that incorporate measurement comparisons of like units (including problems that require measurements given in a larger unit in terms of a smaller unit) add using the standard algorithm with accuracy and efficiency.
- What would the benefit be of subtract using the standard algorithm with accuracy and efficiency?
- What methods will enhance fluency in the addition and subtraction of multi-digit whole numbers using the standard algorithm?

Unit Enduring Understandings
• Build fractions from unit fractions. • Represent and interpret data. • Understand decimal notation for fractions and compare decimal fractions. • Solve problems involving measurement and conversion of measurements. • Use place value understanding and properties of operations to add and subtract. • Some fractions can be decomposed. • Addition/subtraction of fractions is joining/separating parts referring to the same whole. • Fraction Multiplication: any fraction *a*/*b* as a multiple of fraction 1/*b*. • Fraction Multiplication: any multiple of fraction *a/b* is also a multiple of fraction 1*/b*. • Relationship between place value (decimals) and fraction.
Key Vocabulary
• fractions • denominators • equations • mixed numbers • line plot • intervals of time • liquid volumes • masses of objects •

Unit Learning Targets (Students will do…)
• Add and subtract fractions having like denominators in order to solve real world problems. • Develop visual fraction models and write equations to represent real world problems involving addition and subtraction of fractions. • Add and subtract mixed numbers with like denominators. • Given a data set consisting of measurements in fractions of a unit, create a line plot. • Using measurement information presented in line plots, add and subtract fractions with like denominators in order to solve problems. • Represent *a/b* as a x (1/*b*) using a visual fraction model. • Represent $n \times (a/b)$ *as* $(n \times a)/b$ in a visual fraction model. • Multiply a fraction by a whole number. • Solve real world problems by multiplying a fraction by a whole number, using visual fraction models and equations to represent the problem. • Add two fractions with respective denominators of 10 and 100 using equivalent fractions • Write a decimal as a fraction that has a denominator of 10 or 100 • Represent a decimal using a model. • Compare two decimals to hundredths by reasoning about their size. • Explain that comparisons are valid only when the two decimals refer to the same whole. • Record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual model). • Solve word problems (using addition, subtraction and multiplication) involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals. • Solve word problems (using all four operations) involving whole number distances, intervals of time, liquid volumes, masses of objects, and money, including problems requiring expressing measurements given in a larger measurement unit in terms of a smaller measurement unit (conversion). • Construct diagrams (e.g. number line diagrams) to represent measurement quantities.
Instructional Best Practices and Exemplars
Instructional Best Practices and Exemplars **Instructional Best Practices** **(Please see information in attached link)**

Unit 4 Grade 4		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 4.G.A.1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● draw points, lines, line segments and rays. ● draw angles (right, acute, obtuse). ● draw perpendicular and parallel lines. ● distinguish between lines, line segments, and rays. ● identify points, lines, line segment, rays, right angles, acute angles, obtuse angles, perpendicular lines and parallel lines in two-dimensional figures. Learning Goal 1: Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines and identify these in two-dimensional figures.
● 4.G.A.2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the	MP.5 Use appropriate tools strategically.	Concept(s): ● Trapezoid is a quadrilateral with at least one pair of parallel sides.

presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	MP.7 Look for and make use of structure.	Students are able to: ● classify triangles based on the presence or absence of perpendicular lines and based on the presence or absence of angles of a particular size. ● classify quadrilaterals based on the presence or absence of parallel or perpendicular lines and based on the presence or absence of angles of a particular size. Learning Goal 2: Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a particular size; recognize right angles as a category, and identify right, acute, obtuse, equilateral, isosceles, and scalene triangles.
● 4.G.A.3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● fold a figure along a line in order to create matching parts. ● identify lines of symmetry as a line across the figure such that the figure can be folded along the line into matching parts. ● identify figures having line symmetry. ● draw lines of symmetry. Learning Goal 3: Draw lines of symmetry and identify line-symmetric figures.
● 4.MD.C.5. Recognize angles as geometric shapes that are formed wherever two rays share a	MP.2 Reason abstractly and quantitatively.	Concept(s):

common endpoint, and understand concepts of angle measurement. 4.MD.C.5a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. 4.MD.C.5b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.		• Angles are formed by two rays sharing a common endpoint and result from the rotation of one ray around the endpoint. • Angle Measurement: An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees. Students are able to: • describe an angle as measured with reference to a circle with the center of the circle being the common endpoint of the rays. • explain a 'one-degree angle' and its relation to a circle; a "degree" is defined as 1/360 (one degree angle) of the entire circle. Learning Goal 4: Explain angles as geometric shapes formed by two rays sharing a common endpoint and explain the relationship between a one-degree angle, a circle, and angle measure.
• 4.MD.C.6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically.	Concept(s): No new concept(s) introduced Students are able to: • measure angles in whole-number degrees. • given an angle measure, sketch the angle. Learning Goal 5: Measure angles in whole number degrees using a protractor and sketch angles of specific measures.

● 4.MD.C.7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	MP.1 Make sense of problems and persevere in solving them. MP.7 Look for and make use of structure.	Concept(s): ● Angle measures may be added; when an angle is decomposed into non-overlapping parts, the angle measure of the whole (original angle) is the sum of the angle measures of the parts. Students are able to: ● add and subtract to find unknown angles on a diagram in real world and mathematical problems. ● write an equation with a symbol for the unknown angle measure. Learning Goal 6: Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems using a symbol for an unknown angle measure.
● 4.OA.A.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *(benchmarked)	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.7 Look for and make use of structure.	Concept(s): ● Proper use of the equal sign. ● Improper use of the equal sign (e.g. 3 + 7 = 10 – 5 = 5 is incorrect). Students are able to: ● solve multi-step word problems involving any of the four operations. ● solve multi-step word problems involving interpretation (in context) of a remainder. ● write equations to represent multi-step word problems, using a letter to represent the unknown quantity. ● explain why an answer is reasonable. ● use mental computation and estimation strategies to determine whether an answer is reasonable.

		Learning Goal 7: Write and solve each equation (including any of the four operations) in order to solve multi-step word problems, using a letter to represent the unknown; interpret remainders in context and assess the reasonableness of answers using mental computation with estimation strategies.
• 4.NBT.B.4. Fluently add and subtract multi-digit whole numbers using the standard algorithm. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.] *(benchmarked)	MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: • add using the standard algorithm with accuracy and efficiency • subtract using the standard algorithm with accuracy and efficiency Learning Goal 8: Fluently add and subtract multi-digit whole numbers using the standard algorithm

Unit 4 Overview (Geometry and Measurement)	
Content Area	Mathematics
Unit Title	Geometry and Measurement
Grade Level	Grade 4
Recommended Pacing	APX: 45 Days
Unit Summary	In this unit of study students will draw and identify lines and angles, and classify shapes by

	properties of their lines and angles, understand concepts of angle and measure angles (Geometric measurement) trapezoid is a quadrilateral with at least one pair of parallel sides, angles are formed by two rays sharing a common endpoint and result from the rotation of one ray around the endpoint, angle Measurement: An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees, measure angles in whole-number degrees, given an angle measure, sketch the angle, angle measures may be added; when an angle is decomposed into non-overlapping parts, the angle measure of the whole (original angle) is the sum of the angle measures of the parts and use the four operations with whole numbers to solve problems.
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.4.4	Determine the meaning of general academic and domain specific words or phrases in a text relevant to a grade 4 topic or subject area. (See grade 4 Language standards 4-6 for additional expectations.)
RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
RI.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

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

4.G.A.3.	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
4.MD.C.5.	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
4.MD.C.5a.	An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.
4.MD.C.5b.	An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
4.MD.C.6.	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
4.MD.C.7.	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.
4.OA.A.3.	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *(benchmarked)
4.NBT.B.4.	Fluently add and subtract multi-digit whole numbers using the standard algorithm. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.] *(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
● What materials and educational tools will students utilize to draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines and identify these in two-dimensional figures? ● How will students ability to classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a particular size; recognize right angles as a category, and identify right, acute, obtuse, equilateral, isosceles, and scalene triangle allow students to solve geometric based problems? ● Why is it important for students to draw lines of symmetry and identify line-symmetric figures? ● In what ways will students be able to explain angles as geometric shapes formed by two rays sharing a common endpoint and explain the relationship between a one-degree angle, a circle, and angle measure? ● How will students measure angles in whole number degrees using a protractor and sketch angles of specific measures? ● What methods will students utilize to solve addition and subtraction problems and to find unknown angles on a diagram in real world and mathematical problems using a symbol for an unknown angle measure? ● How will students construct written responses to solve each equation (including any of the four operations) in order to solve multi-step word problems, using a letter to represent the unknown; interpret remainders in context and assess the reasonableness of answers using mental computation with estimation strategies? ● Why is it important to fluently add and subtract multi-digit whole numbers using the standard algorithm?
Unit Enduring Understandings
● Draw and identify lines and angles, and classify shapes by properties of their lines and angles. ● Understand concepts of angle and measure angles (Geometric measurement) ● Trapezoid is a quadrilateral with at least one pair of parallel sides. ● Angles are formed by two rays sharing a common endpoint and result from the rotation of one ray around the endpoint. ● Angle Measurement: An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees. ● Measure angles in whole-number degrees. ● Given an angle measure, sketch the angle.

- Angle measures may be added; when an angle is decomposed into non-overlapping parts, the angle measure of the whole (original angle) is the sum of the angle measures of the parts.
- Use the four operations with whole numbers to solve problems.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

Key Vocabulary

- perpendicular
- parallel lines
- Points
- Lines
- line segment
- Rays
- right angles
- acute angles
- obtuse angles
- perpendicular lines and
- two-dimensional figures
- quadrilaterals
- symmetry
- endpoint
- remainder

Unit Learning Targets (Students will do…)

- Draw perpendicular and parallel lines.
- Draw angles (right, acute, obtuse).

- Distinguish between lines, line segments, and rays.
- Identify points, lines, line segment, rays, right angles, acute angles, obtuse angles, perpendicular lines and parallel lines in two-dimensional figures.
- Classify triangles based on the presence or absence of perpendicular lines and based on the presence or absence of angles of a particular size.
- Classify quadrilaterals based on the presence or absence of parallel or perpendicular lines and based on the presence or absence of angles of a particular size.
- Fold a figure along a line in order to create matching parts.
- Identify lines of symmetry as a line across the figure such that the figure can be folded along the line into matching parts.
- Identify figures having line symmetry.
- Draw lines of symmetry.
- Describe an angle as measured with reference to a circle with the center of the circle being the common endpoint of the rays.
- Explain a 'one-degree angle' and its relation to a circle; a "degree" is defined as 1/360 (one degree angle) of the entire circle.
- Add and subtract to find unknown angles on a diagram in real world and mathematical problems.
- Write an equation with a symbol for the unknown angle measure.
- Solve multi-step word problems involving any of the four operations.
- Solve multi-step word problems involving interpretation (in context) of a remainder.
- Write equations to represent multi-step word problems, using a letter to represent the unknown quantity.
- Explain why an answer is reasonable.
- Use mental computation and estimation strategies to determine whether an answer is reasonable.
- Add using the standard algorithm with accuracy and efficiency.
- Subtract using the standard algorithm with accuracy and efficiency.

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