

Woodland Park Mathematics Curriculum

Mathematics Curriculum Map

5th Grade

Curriculum Authors:

Supervisor of Mathematics: Ms. Bronwen Calderon

Director of Curriculum and Instruction: Mrs. Carmela Triglia

Course Philosophy and Description

In mathematics, students are engaged through multiple modalities that ensures learning a high quality curriculum and instruction which enables every student to reach their potential understanding. Student will be empowered to succeed with personalized resources that fits each student's interests and growth in the field of mathematics.

Woodland Park's philosophy in mathematics consists of providing hands on activities, differentiated instruction for conceptual mathematical understanding that supports the New Jersey State Learning Standards for grades k-8, and bridging the properties of mathematics to the make real world extensions. Students will learn to address a range of tasks focusing on the application of concepts, skills and understandings. Students will be asked to solve problems involving the key knowledge and skills for their grade level as identified by the NJSLS; express mathematical reasoning and construct a mathematical argument and apply concepts to solve model real world problems. The balanced mathematics instructional model will be used as the basis for all mathematics instruction.

NJSLS Mathematical Practices

Each grade level consists of mathematical standards that were created to balance the procedure and understanding of math topics. The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word “understand” are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. These practices rest on important “proficiencies and processes” that are in alignment to the longstanding mathematical standards in education.

- **Mathematical Practice #1: Make sense of problems and persevere in solving them.** Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to the solution.
- **Mathematical Practice # 2: Reason abstractly and quantitatively.** Mathematically proficient students make sense of quantities and their relationships in problem situations.
- **Mathematical Practice #3: Construct viable arguments and critique the reason for others.** Mathematically proficient students understand and use state assumptions, definitions, and previously established results in constructing arguments.
- **Mathematical Practice #4: Model with mathematics.** Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.
- **Mathematical Practice #5: Use appropriate tools strategically.** Mathematically proficient students consider the available tools when solving a mathematical problem.
- **Mathematical Practice # 6: Attend to precision.** Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others.
- **Mathematical Practice # 7: Look for and make use of structure.** Mathematically proficient students look closely to discern a pattern or structure.
- **Mathematical Practice #8: Look for and express regularity in repeated reasoning.** Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts.

Woodland Park Grade Level Overview (as per NJSL Framework)

In Kindergarten, instructional time should focus on two critical areas: (1) representing and comparing whole numbers, initially with sets of objects; (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

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

In Grade 5, instructional time should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

In Grade 7, instructional time should focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples.

In Grade 8, instructional time should focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

5th Grade Overview:

In Grade 5, instructional time should focus on three critical areas:

- (1) Developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions)**
 - a. Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)
- (2) Extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations.**
 - a. Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately
- (3) Developing understanding of volume.**
 - a. Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems

Overview of K-8 Mathematics Curriculum Pacing Guide

Titles of Units

	September	October	November	December	January	February	March	April	May	June
Grade K	Counting and Cardinality		Counting and Cardinality/ Operations and Algebraic Thinking			Measurement & Data			Geometry	
Grade 1	Addition and Subtraction within 10				Place Value/ Addition & Subtraction through 20		Place Value, Measurement, & Shapes		Reason with Shape and their Attributes	
Grade 2	Add and Subtract within 100 and Understand Place Value to 1000			Place Value Strategies for Addition and Subtraction		Measurement			Reason with Shapes and Represent Data	
Grade 3	Multiplication, Division and Concepts of Area			Modeling Multiplication, Division and Fractions			Fractions as Numbers and Measurement		Representing Data	
Grade 4	Place Value and Operations with Whole Numbers		Multi-digit Arithmetic and Fraction Equivalence			Building Fractions and Decimal Notation			Geometry and Measurement	
Grade 5	Understanding the Place Value System		Understanding Volume and Operations on Fractions			More Operations on Fractions			Coordinate Geometry and Classifying Figures	
Grade 6	Operations and Reasoning about Ratios		Equations, The Rational Number System and 2D Geometry			Equations, The Rational Number System and 2D Geometry			Variability, Distributions, and Relationships between Quantities	
Grade 7	Operations on Rational Numbers and Expressions			Equations, Ratios and Proportions			Drawing Inferences about Populations and Probability Models		Problem Solving with Geometry	
Grade 8	Exponents, Expressions, and Equations		Functions, Equations, and Solutions			Geometry: Pythagorean Theorem, Congruence and Similarity Transformations			Statistics and Probability: Scatterplots and Association	
Algebra	Solving Equations and Inequalities		Introduction to Functions	Linear Functions/ Inequalities and Systems/Exponential Functions			Polynomials/ Quadratic Functions and Equations		Quadratic Functions and Equations	

5th Grade Pacing Guide

Mathematics Unit Titles:

Unit 1: Understanding the Place Value System

September-October

Unit 2: Understanding Volume and Operations on Fractions

**November -
January**

Unit 3: More Operations on Fractions

February - April

Unit 4: Coordinate Geometry and Classifying Figures

May - June

Content Area:	Grade Level : 5th grade
Unit 1: Understanding the Place Value System	Time Frame: September-October
Interdisciplinary Connections	
NGSS Connection:	
Matter and Its Interactions	
<ul style="list-style-type: none"> • 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 5.NBT.A.1 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. • 5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.5 Use appropriate tools strategically. • 5-PS1-3. Make observations and measurements to identify materials based on their properties. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.5 Use appropriate tools strategically. 	
Earth's Place in the Universe	
<ul style="list-style-type: none"> • 5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. 	
Engineering Design	
<ul style="list-style-type: none"> • 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. 	

- **Cross cutting concepts to NJSLS math standard(s):** MP.4 Model with mathematics.
- **Cross cutting concepts to NJSLS math standard(s):** MP.5 Use appropriate tools strategically.
- **Cross cutting concepts to NJSLS math standard(s):** 3-5.OA Operations and Algebraic Thinking.
- 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.2 Reason abstractly and quantitatively.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.4 Model with mathematics.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.5 Use appropriate tools strategically.
 - **Cross cutting concepts to NJSLS math standard(s):** 3-5.OA Operations and Algebraic Thinking.

ELA Connection:

Fluency

- RF.1.4. Read with sufficient accuracy and fluency to support comprehension.

Progress Indicators for Writing

- W.5.2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
 - B. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
 - D. Use precise language and domain-specific vocabulary to inform about or explain the topic.
 - E. Provide a conclusion related to the information of explanation presented. Comprehension and Collaboration.

Comprehension and Collaboration

- SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
 - A. Explicitly draw on previously read text or material and other information known about the topic to explore ideas under discussion.
- SL.5.2. Summarize a written text read aloud or information presented in diverse media and formats (e.g., visually, quantitatively, and orally).
- SL.5.4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Reading Informational Text Key Ideas and Details

- RI.5.1. Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
- RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
- RI.5.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
- RI.5.7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
- RI.5.8. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

Career Ready Practices

CRP1. Act as a responsible and contributing citizen and employee

Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

CRP2. Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

CRP4. Communicate clearly and effectively and with reason.

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

CRP12. Work productively in teams while using cultural global competence.

Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

9.1 Personal Financial Literacy: By the end of grade 8, students will be able to:

STRAND A: INCOME AND CAREERS

9.1.8.A.6 Explain how income affects spending decisions.

9.1.8.A.7 Explain the purpose of the payroll deduction process, taxable income, and employee benefits.

9.2 Career Awareness, Exploration, and Preparation: By the end of grade 8, students will be able to:

STRAND B: CAREER EXPLORATION

- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Technology Standards (8.1 and 8.2)

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.

A. Technology Operations and Concepts: *Students demonstrate a sound understanding of technology concepts, systems and operations.*

Understand and use technology systems.

8.1.8.A.1: Demonstrate knowledge of a real world problem using digital tools.

Unit 1: Understanding the Place Value System

Standards:

5.NBT.A. Understand the place value system.

- 5. NBT.A.1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $1/10$ of what it represents in the place to its left.
- 5. NBT.A.2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
- 5. NBT.A.3. Read, write, and compare decimals to thousandths.
 - 5.NBT.A.3(a). Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.
 - 5. NBT.A.3(b). Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
- 5. NBT.A.4. Use place value understanding to round decimals to any place.

5. NBT.B. Perform operations with multi-digit whole numbers and with decimals to hundredths.

- 5. NBT.B.5. Fluently multiply multi-digit whole numbers using the standard algorithm. **(benchmarked)**.
- 5. NBT.B.6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

5.OA.A. Write and interpret numerical expressions.

- 5.OA.A.1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
- 5.OA.A.2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.*

<p>Essential Questions:</p> <ul style="list-style-type: none"> • How can we develop and apply important properties of numbers to help us solve problems? • How can we compare and contrast numbers? • How can factors and multiples help us solve fraction problems? • Why is there an order to follow to compute answers? • How does the location of a number in a place-value system affect the value of the number? • How can we use real-life experiences to construct meanings for rational numbers? • How can we decide when to use an exact answer and when to use an estimate? • How is place value used to round numbers? • What is the significance of the decimal point? 	<p>Enduring Understanding:</p> <p><u>Learning Goal 1:</u> Explain that a digit in one place represents $\frac{1}{10}$ of what it would represent in the place to its left and ten times what it would represent in the place to its right.</p> <p><u>Learning Goal 2:</u> Explain patterns in the number of zeros in the product when a whole number is multiplied by a power of 10; represent powers of 10 using whole-number exponents.</p> <p><u>Learning Goal 3:</u> Use the standard algorithm to multiply a whole number of up to a four digits by a whole number of up to two digits.</p> <p><u>Learning Goal 4:</u> Calculate whole number quotients of whole numbers with 4-digit dividends and 2-digit divisors; explain and represent calculations with equations, rectangular arrays, and area models.</p> <p><u>Learning Goal 5:</u> Compare two decimals to thousandths using $>$, $=$, and $<$ for numbers presented as base ten numerals, number names, and/or in expanded form.</p> <p><u>Learning Goal 6:</u> Round decimals to any place value.</p> <p><u>Learning Goal 7:</u> Write numerical expressions when given a verbal description or word problem; interpret numerical expressions without evaluating them.</p> <p><u>Learning Goal 8:</u> Evaluate numerical expressions that contain parentheses, brackets and braces.</p>
<p>Knowledge and Skills:</p> <p><u>Concept 1:</u> Quantitative relationships exist between the digits in place value positions of a multi-digit number.</p> <p><u>Concept 2:</u> Scientific notation and exponents</p> <p><u>Concept 3:</u> Multiple representations of whole numbers</p>	<p>Demonstration of Learning: <i>Students are able to: (TLWBAT/SWBAT):</i></p> <p><u>Objective 1:</u> explain that a digit in one place represents $\frac{1}{10}$ of what it would represent in the place to its left.</p> <p><u>Objective 2:</u> explain that a digit in one place represents ten times what it would represent in the place to its right.</p>

Concept 4: Standard convention for performing operations (Order of operations, including grouping symbols)

Concept 5: Order of operations, including grouping symbols.

Objective 3: explain patterns in the number of zeros of the product when multiplying a whole number by powers of 10.

Objective 4: write powers of 10 using whole-number exponents.

Objective 5: multiply a whole number of up to a four digits by a whole number of up two digits using the standard algorithm with accuracy and efficiency.

Objective 6: divide to find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors using strategies based on place value, properties of operations, and the relationship between multiplication and division.

Objective 7: represent these operations with equations, rectangular arrays, and area models.

Objective 8: explain the calculation by referring to the model (equation, array, or area model).

Objective 9: evaluate numerical expressions that include grouping symbols (parentheses, brackets or braces).

Objective 10: evaluate numerical expressions that include nested grouping symbols (for example, $3 \times [5 + (7 - 3)]$).

Objective 11: write a simple numerical expression when given a verbal description.

Objective 12: interpret the quantitative relationships in numerical expressions without evaluating (simplifying) the expression.

Objective 13: read and write decimals to thousandths using base-ten numerals.

Objective 14: read and write decimals to thousandths using number names.

	<p>Objective 15: read and write decimals to thousandths using expanded form.</p> <p>Objective 16: compare two decimals to thousandths using $>$, $=$, and $<$ symbols.</p> <p>Objective 17: compare decimals when each is presented in a different form (base-ten numeral, number name, and expanded form).</p> <p>Objective 18: round decimals to any place value.</p>	
<p>Core Instructional and Supplemental Materials: Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. <i>McGraw-Hill Education: My Math 5</i> McGraw-Hill Education, 2016.</p> <ul style="list-style-type: none"> • “Model the Math” activities in Teacher Edition for each lesson • “Literature Connection” found in Teacher Edition for each lesson • “Real-World Problem Solving Reader” • RTI Differentiated Instruction / ELL Support for each chapter • Laptops • Math centers/stations • Video tutorials for anticipatory set/guided visuals • Anchor charts created by teachers • Reference sheets created by teachers • Vocabulary Activities/Math Word Wall • Problem of the day(s)/Weeks 	<p>Technology Integration</p> <ul style="list-style-type: none"> • www.ixl.com • www.softschools.com • www.mathisfun.com • www.jmathpage.com • www.illustrations.nctm.org • www.k5mathteachingresources.com • www.k-5learning.com • www.smartexchange.com(interactive smartboard tools) • www.buzzmath.com • www.math-drills.com • www.splashmath.com • https://www.education.com • https://www.khanacademy.org/ • https://www.desmos.com/ • www.aaamath.com • www.xtramath.com • https://www.illustrativemathematics.org/ • http://www.nctm.org/ • http://nlvm.usu.edu/ • http://illustrations.nctm.org/ • https://www.explorelarning.com/ 	<p>Illustrative Mathematics</p> <p>5.OA.A.1 Using Operations and Parentheses</p> <p>5.OA.A.1 Watch out for Parentheses 1</p> <p>5.NBT.A.1 Which number is it?</p> <p>5.NBT.A.1 Millions and Billions of People</p> <p>5.NBT.A.3 Placing Thousandths on the Number Line</p> <p>5.NBT.A.4 Rounding to Tenths and Hundredths</p> <p>5.NBT.B.5 Elmer's Multiplication Error</p>

<p>Suggested Activities:</p> <p>Place value matching game Division-Partial Quotient Division-Base 10</p>	<p>PEMDAS maze Think-Pair-Share Game Order of Operations Bingo Equation Match Factors vs Multiples Sort</p>	<p>Multiplication - Partial Product Multiplication- Standard Algorithm Order of Operations Hierarchy Division - Standard Algorithm</p>
<p>Formative/Summative/Benchmark Assessments:</p> <p>Diagnostic Assessment (as Pre-Assessment): Assesses a student’s strengths, weaknesses, knowledge, and skills prior to instruction.</p> <ul style="list-style-type: none"> • STAR 360, iXL, Pre-assessments per grade level • Summer packet review • Daily Problem of the Day • Diagnostic Pre-Chapter Assessment “Am I Ready” for each chapter <p>Formative Assessments: Assesses a student’s performance during instruction, and usually occurs regularly throughout the instruction process.</p> <ul style="list-style-type: none"> • Writing Prompts, Journals, and Portfolios, Do-Now(s), Exit Tickets, iXL (performance assessments), Hands on Labs, Projects, Menu Choice boards, Anticipatory Sets, Problem of the Week <p>Summative Assessments: Measures a student’s achievement at the end of instruction.</p> <ul style="list-style-type: none"> • Diagnostic Quizzes, Activities, Tasks, Challenge Problems, Unit Tests, Chapter Tests, End of Unit Writing Submissions, End of Unit Projects, Benchmark Assessments, midterms and finals (if applicable per grade level) • Assessment Masters – Diagnostic Test for each unit Chapter Test – on level (2A) • STAR 360 benchmark assessments <p>Criterion-Referenced Assessment: Measures a student’s performance against a goal, specific objective, or standard.</p> <p>Norm-Referenced Assessment: Compares a student’s performance against other students (a national group or other “norm”)</p> <ul style="list-style-type: none"> • Alternate Assessments <p>Interim/Benchmark Assessment</p> <p>Evaluates student performance at periodic intervals, frequently at the end of a grading period. Can predict student performance on end-of-the-year summative assessments.</p>		

Unit 1: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs 	<ul style="list-style-type: none"> ❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ E-Dictionaries, bilingual dictionaries ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests with various types of questions ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
At Risk	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Partner work ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
IEP/504	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

	<ul style="list-style-type: none"> ❖ Use of technology ❖ Provide word boxes ❖ Use of a calculator ❖ Present fewer multiple choice answers ❖ Acknowledge alternate responses such as pictures and/or verbal instead of written ❖ Teacher may scribe for student ❖ Oral assessment instead of written 	<ul style="list-style-type: none"> ❖ Use of technology ❖ Small group/one-to-one instruction ❖ Teach information processing strategies ❖ Chunking ❖ Frequent checks for understanding ❖ Access to teacher created notes ❖ Use of visual and multisensory formats ❖ Use of assistive technology ❖ Use of prompts ❖ Vocabulary walls and anchor charts available ❖ Provide a Study Guide ❖ Graphic organizers ❖ Teacher modeling or anchor charts on board ❖ Provide multi-level reading material ❖ Chunk learning into smaller segments ❖ Small group instruction 	
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Instructional Routines for Core Instructional Delivery

<p>Collaborative Problem Solving Connect Previous Knowledge to New Learning Making Thinking Visible Develop and Demonstrate Mathematical Practices Inquiry-Oriented and Exploratory Approach Multiple Solution Paths and Strategies</p>	<p>Use of Multiple Representations Explain the Rationale of your Math Work Quick Writes Pair/Trio Sharing Turn and Talk Charting Gallery Walks Small Group and Whole Class Discussions Student Modeling</p>	<p>Analyze Student Work Identify Student’s Mathematical Understanding Identify Student’s Mathematical Misunderstandings Interviews Role Playing Diagrams, Charts, Tables, and Graphs Anticipate Likely and Possible Student Responses Collect Different Student Approaches</p>	<p>Multiple Response Strategies Asking Assessing and Advancing Questions Revoicing Marking Recapping Challenging Pressing for Accuracy and Reasoning Maintain the Cognitive Demand</p>
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Content Area:	Grade Level : 5th grade
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Unit 2: Understanding Volume and Operations of Fractions	Time Frame: November-January
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Interdisciplinary Connections

NGSS Connection:

Matter and Its Interactions

- 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.
 - **Cross cutting concepts to NJSL math standard(s):** MP.2 Reason abstractly and quantitatively.
 - **Cross cutting concepts to NJSL math standard(s):** MP.4 Model with mathematics.
 - **Cross cutting concepts to NJSL math standard(s):** 5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
 - **Cross cutting concepts to NJSL math standard(s):** 5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

ELA Connection:

Fluency

- RF.1.4. Read with sufficient accuracy and fluency to support comprehension.

Progress Indicators for Writing

- W.5.2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
 - B. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
 - D. Use precise language and domain-specific vocabulary to inform about or explain the topic.
 - E. Provide a conclusion related to the information of explanation presented. Comprehension and Collaboration.

Comprehension and Collaboration

- SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
 - A. Explicitly draw on previously read text or material and other information known about the topic to explore ideas under discussion.
- SL.5.2. Summarize a written text read aloud or information presented in diverse media and formats (e.g., visually, quantitatively, and orally).
- SL.5.4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Reading Informational Text Key Ideas and Details

- RI.5.1. Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
- RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
- RI.5.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
- RI.5.7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
- RI.5.8. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

Career Ready Practices

CRP1. Act as a responsible and contributing citizen and employee

Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

CRP2. Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

CRP4. Communicate clearly and effectively and with reason.

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

CRP11. Use technology to enhance productivity.

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

CRP12. Work productively in teams while using cultural global competence.

Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

9.1 Personal Financial Literacy: By the end of grade 8, students will be able to:

STRAND A: INCOME AND CAREERS

9.1.8.A.6 Explain how income affects spending decisions.

STRAND B: MONEY MANAGEMENT

9.1.8.B.2 Construct a simple personal savings and spending plan based on various sources of income.

9.1.8.B.6 Evaluate the relationship of cultural traditions and historical influences on financial practice.

STRAND D: PLANNING, SAVING, AND INVESTING

9.1.8.D.1 Determine how saving contributes to financial well-being.

9.2 Career Awareness, Exploration, and Preparation: By the end of grade 8, students will be able to:

STRAND B: CAREER EXPLORATION

- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Technology Standards (8.1 and 8.2)

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.

B. Technology Operations and Concepts: *Students demonstrate a sound understanding of technology concepts, systems and operations.*

Understand and use technology systems.

8.1.8.A.1: Demonstrate knowledge of a real world problem using digital tools.

Unit 2: Understanding Volume and Operations on Fractions

Standards:

5.MD.C. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

- 5.MD.C.3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
 - 5.MD.C.5a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
 - 5.MD.C.5b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
- 5.MD.C.4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and **non-standard** units.
- 5.MD.C.5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
 - 5.MD.C.5a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
 - 5.MD.C.5b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.
 - 5.MD.C.5c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

5.NBT.B. Perform operations with multi-digit whole numbers and with decimals to hundredths

- 5.NBT.B.5. Fluently multiply multi-digit whole numbers using the standard algorithm. **(benchmarked)**.

5.NF.A. Use equivalent fractions as a strategy to add and subtract fractions.

- 5.NF.A.1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$ (in general, $a/b + c/d = (ad + bc)/bd$).*
- 5.NF.A.2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.*

5.NF.B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions

- 5.NF.B.3. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*

- 5.NF.B.4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
 - 5.NF.B.4a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)
 - 5.NF.B.4b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

Essential Questions:

- How can we use real-life experiences to construct meanings for fractions and decimals?
- How can we decide when to use an exact answer and when to use an estimate?
- How does the location of a number in a place-value system affect the value of the number?
- How is place value used to round numbers?
- What is the significance of the decimal point?
- How do we measure volume?

Enduring Understanding:

Learning Goal 1: Measure volume by counting the total number cubic units required to fill a figure without gaps or overlaps.

Learning Goal 2: Show that the volume of a right rectangular prism found by counting all the unit cubes is the same as the formulas $V = l \times w \times h$ or $V = B \times h$.

Learning Goal 3: Apply formulas to solve real world and mathematical problems involving volumes of right rectangular prisms that have whole number edge lengths.

Learning Goal 4: Find the volume of a composite solid figure composed of two non-overlapping right rectangular prisms, applying this strategy to solve real-world problems.

Learning Goal 5: Fluently multiply multi-digit whole numbers with accuracy and efficiency.

Learning Goal 6: Add and subtract fractions (including mixed numbers) with unlike denominators by replacing the given fractions with equivalent fractions having like denominators

Learning Goal 7: Solve word problems involving adding or subtracting fractions with unlike denominators, and determine if the answer to the word problem is reasonable, using estimations with benchmark fractions.

Learning Goal 8: Interpret a fraction as a division of the numerator by the denominator; solve word problems in which division of whole numbers leads to fractions or mixed numbers as solutions.

	<p>Learning Goal 9: For whole number or fraction q, interpret the product $(a/b) \times q$ as a parts of a whole partitioned into b equal parts added q times (e.g. using a visual fraction model).</p> <p>Learning Goal 10: Tile a rectangle with unit fraction squares to find the area and multiply side lengths to find the area of the rectangle, showing that the areas are the same.</p>
<p>Knowledge and Skills:</p> <p>Concept 1: Volume is the amount of space inside a solid (3-dimensional) figure.</p> <p>Concept 2: Cubes with side length of 1 unit, called “a unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.</p> <p>Concept 3: Solid figures which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.</p> <p>Concept 4: Volume of a solid can be determined using unit cubes of other dimensions.</p> <p>Concept 5: Volume is additive: volumes of composite solids can be determined by adding the volumes of each solid.</p> <p>Equivalent fractions can be used to add and subtract fractions.</p> <p>Fractions represent division.</p>	<p>Demonstration of Learning: <i>Students are able to: (TLWBAT/SWBAT):</i></p> <p>Objective 1: count unit cubes in order to measure the volume of a solid.</p> <p>Objective 2: use unit cubes of centimeters, inches, and/or other units to measure volume.</p> <p>Objective 3: pack right rectangular prisms with cubes to find volume and multiply side lengths of the right rectangular prism to find volume, showing that they are the same.</p> <p>Objective 4: pack right rectangular prisms with cubes to find volume and multiply height by the area of the base, showing that they are the same.</p> <p>Objective 5: explain how both volume formulas relate to counting the cubes in one layer and multiplying that value by the number of layers (height).</p> <p>Objective 6: write the volume of an object as the product of three whole numbers.</p> <p>Objective 7: solve real-world and mathematical problems using the formulas $V = l \times w \times h$ and $V = B \times h$.</p> <p>Objective 8: find the volume of a composite solid composed of two right rectangular prisms.</p> <p>Objective 9: multiply multi-digit whole numbers with accuracy and efficiency.</p> <p>Objective 10: produce an equivalent sum (or difference) of fractions with like denominators from the original sum (or difference) of fractions that has unlike denominators.</p>

Objective 11: add and subtract fractions with unlike denominators by replacing given fractions with equivalent fractions.

Objective 12: add and subtract fractions, including mixed numbers, with unlike denominators to solve word problems.

Objective 13: represent calculations and solutions with visual fraction models and equations

Objective 14: estimate answers using benchmark fractions and explain whether the answer is reasonable.

Objective 15: estimate answers by reasoning about the size of the fractions and explain whether the answer is reasonable.

Objective 16: represent a fraction as a division statement ($a/b = a \div b$).

Objective 17: divide whole numbers in order to solve real world problems, representing the quotient as a fraction or a mixed number.

Objective 18: represent word problems involving division of whole numbers using visual fraction models and equations.

Objective 19: for whole number or fraction q , represent $(a/b) \times q$ as a parts of a partition of q into b equal parts [e.g. using a visual fraction model, $(3/4) \times 5$ can be represented by 3 parts, after partitioning 5 objects into 4 equal parts].

Objective 20: for whole number or fraction q , represent $(a/b) \times q$ as $a \times q \div b$ [e.g. showing that $(2/5) \times 3$ is equivalent to $(2 \times 3) \div 5$].

Objective 21: from a story context, interpret $(a/b) \times q$ as a parts of a partition of q into b equal parts.

	<p>Objective 22: tile a rectangle having fractional side lengths using unit squares of the appropriate unit fraction [e.g. given a $3\frac{1}{4}$ inch x $7\frac{3}{4}$ inch rectangle, tile the rectangle using $\frac{1}{4}$ inch tiles].</p> <p>Objective 23: show that the area found by tiling with unit fraction tiles is the same as would be found by multiplying the side lengths.</p>	
<p>Core Instructional and Supplemental Materials: Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. <i>McGraw-Hill Education: My Math 5</i> McGraw-Hill Education, 2016.</p> <ul style="list-style-type: none"> • “Model the Math” activities in Teacher Edition for each lesson • “Literature Connection” found in Teacher Edition for each lesson • “Real-World Problem Solving Reader” • RTI Differentiated Instruction / ELL Support for each chapter • Laptops • Math centers/stations • Video tutorials for anticipatory set/guided visuals • Anchor charts created by teachers • Reference sheets created by teachers • Vocabulary Activities/Math Word Wall • Problem of the day(s)/Weeks 	<p>Technology Integration</p> <ul style="list-style-type: none"> • www.ixl.com • www.softschools.com • www.mathisfun.com • www.jmathpage.com • www.illuminations.nctm.org • www.k5mathteachingresources.com • www.k-5learning.com • www.smartexchange.com(interactive smartboard tools) • www.buzzmath.com • www.math-drills.com • www.splashmath.com • https://www.education.com • https://www.khanacademy.org/ • https://www.desmos.com/ • www.aaamath.com • www.xtramath.com • https://www.illustrativemathematics.org/ • http://www.nctm.org/ • http://nlvm.usu.edu/ • http://illuminations.nctm.org/ • https://www.explorellearning.com/ 	<p>Illustrative Mathematics</p> <p>5.MD.C.5 Breaking Apart Composite Solids</p> <p>5.MD.C.5a using Volume to Understand the Associative Property of Multiplication</p> <p>5.MD.C.5b Cari's Aquarium</p> <p>5.MD.C Box of Clay</p> <p>5.NF.A.1 Making S'Mores</p> <p>5.NF.A.2 Do These Add Up?</p> <p>5.NF.A Measuring Cups</p> <p>5.NF.B.3 How Much Pie?</p> <p>5.NF.B.4b Chavone's Bathroom Tiles</p>
<p>Suggested Activities: Volume Whole Numbers</p>	<p>Illustrative Math Lesson - Compound Figures Flash Cards</p>	<p>Exploring Place Value - Base 10 Centers and stations</p>

Formative/Summative/Benchmark Assessments:

Diagnostic Assessment (as Pre-Assessment): Assesses a student's strengths, weaknesses, knowledge, and skills prior to instruction.

- STAR 360, iXL, Pre-assessments per grade level
- Summer packet review
- Daily Problem of the Day
- Diagnostic Pre-Chapter Assessment "Am I Ready" for each chapter

Formative Assessments: Assesses a student's performance during instruction, and usually occurs regularly throughout the instruction process.

- Writing Prompts, Journals, and Portfolios, Do-Now(s), Exit Tickets, iXL (performance assessments), Hands on Labs, Projects, Menu Choice boards, Anticipatory Sets, Problem of the Week

Summative Assessments: Measures a student's achievement at the end of instruction.

- Diagnostic Quizzes, Activities, Tasks, Challenge Problems, Unit Tests, Chapter Tests, End of Unit Writing Submissions, End of Unit Projects, Benchmark Assessments, midterms and finals (if applicable per grade level)
- Assessment Masters – Diagnostic Test for each unit Chapter Test – on level (2A)
- STAR 360 benchmark assessments

Criterion-Referenced Assessment: Measures a student's performance against a goal, specific objective, or standard.

Norm-Referenced Assessment: Compares a student's performance against other students (a national group or other "norm")

- Alternate Assessments

Interim/Benchmark Assessment

Evaluates student performance at periodic intervals, frequently at the end of a grading period. Can predict student performance on end-of-the-year summative assessments.

Unit 2: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs 	<ul style="list-style-type: none"> ❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
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	<ul style="list-style-type: none"> ❖ Use of technology ❖ Provide word boxes ❖ Use of a calculator ❖ Present fewer multiple choice answers ❖ Acknowledge alternate responses such as pictures and/or verbal instead of written ❖ Teacher may scribe for student ❖ Oral assessment instead of written 	<ul style="list-style-type: none"> ❖ Use of technology ❖ Small group/one-to-one instruction ❖ Teach information processing strategies ❖ Chunking ❖ Frequent checks for understanding ❖ Access to teacher created notes ❖ Use of visual and multisensory formats ❖ Use of assistive technology ❖ Use of prompts ❖ Vocabulary walls and anchor charts available ❖ Provide a Study Guide ❖ Graphic organizers ❖ Teacher modeling or anchor charts on board ❖ Provide multi-level reading material ❖ Chunk learning into smaller segments ❖ Small group instruction 	
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Instructional Routines for Core Instructional Delivery

<p>Collaborative Problem Solving Connect Previous Knowledge to New Learning Making Thinking Visible Develop and Demonstrate Mathematical Practices Inquiry-Oriented and Exploratory Approach Multiple Solution Paths and Strategies</p>	<p>Use of Multiple Representations Explain the Rationale of your Math Work Quick Writes Pair/Trio Sharing Turn and Talk Charting Gallery Walks Small Group and Whole Class Discussions Student Modeling</p>	<p>Analyze Student Work Identify Student’s Mathematical Understanding Identify Student’s Mathematical Misunderstandings Interviews Role Playing Diagrams, Charts, Tables, and Graphs Anticipate Likely and Possible Student Responses Collect Different Student Approaches</p>	<p>Multiple Response Strategies Asking Assessing and Advancing Questions Revoicing Marking Recapping Challenging Pressing for Accuracy and Reasoning Maintain the Cognitive Demand</p>
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Content Area:	Grade Level : 5th grade
Unit 3: More Operations of Fractions	Time Frame: February - April
Interdisciplinary Connections	
<p>Matter and Its Interactions</p> <ul style="list-style-type: none"> • 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. • 5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.5 Use appropriate tools strategically. <p>From Molecules to Organisms: Structures and Processes</p> <ul style="list-style-type: none"> • 5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.5 Use appropriate tools strategically. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. <p>ELA Connection:</p> <p>Fluency</p> <ul style="list-style-type: none"> • RF.1.4. Read with sufficient accuracy and fluency to support comprehension. <p>Progress Indicators for Writing</p> <ul style="list-style-type: none"> • W.5.2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly. <ul style="list-style-type: none"> ○ B. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. ○ D. Use precise language and domain-specific vocabulary to inform about or explain the topic. ○ E. Provide a conclusion related to the information of explanation presented. Comprehension and Collaboration. 	

Comprehension and Collaboration

- SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
 - A. Explicitly draw on previously read text or material and other information known about the topic to explore ideas under discussion.
- SL.5.2. Summarize a written text read aloud or information presented in diverse media and formats (e.g., visually, quantitatively, and orally).
- SL.5.4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Reading Informational Text Key Ideas and Details

- RI.5.1. Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
- RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
- RI.5.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
- RI.5.7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
- RI.5.8. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

Career Ready Practices

CRP1. Act as a responsible and contributing citizen and employee

Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

CRP2. Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

CRP9. Model integrity, ethical leadership and effective management.

Career-ready individuals consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.

CRP11. Use technology to enhance productivity.

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

CRP12. Work productively in teams while using cultural global competence.

Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

9.1 Personal Financial Literacy: By the end of grade 8, students will be able to:

STRAND A: INCOME AND CAREERS

9.1.8.A.3 Differentiate among ways that workers can improve earning power through the acquisition of new knowledge and skills.

9.1.8.A.5 Relate how the demand for certain skills determines an individual's earning power.

9.2 Career Awareness, Exploration, and Preparation: By the end of grade 8, students will be able to:

STRAND B: CAREER EXPLORATION

- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Technology Standards (8.1 and 8.2)

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.

C. Technology Operations and Concepts: *Students demonstrate a sound understanding of technology concepts, systems and operations.*

Understand and use technology systems.

8.1.8.A.1: Demonstrate knowledge of a real world problem using digital tools.

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.

E: Research and Information Fluency: *Students apply digital tools to gather, evaluate, and use information.*

Plan strategies to guide inquiry

Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.

Evaluate and select information sources and digital tools based on the appropriateness for specific tasks.

8.1.8.E.1: Effectively use a variety of search tools and filters in professional public databases to find information to solve a real world problem.

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.

F: Critical thinking, problem solving, and decision making: *Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.*

Identify and define authentic problems and significant questions for investigation.

Plan and manage activities to develop a solution or complete a project.

Collect and analyze data to identify solutions and/or make informed decisions.

Use multiple processes and diverse perspectives to explore alternative solutions.

8.1.8.F.1: Explore a local issue, by using digital tools to collect and analyze data to identify a solution and make an informed decision.

Unit 3: More Operations on Fractions

Standards:

5.NF.B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions

- 5.NF.B.4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
 - 5.NF.B.4b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
- 5.NF.B.5. Interpret multiplication as scaling (resizing), by:
 - 5.NF.B.5a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
 - 5.NF.B.5b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
- 5.NF.B.6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
- 5.NF.B.7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
 - ***(benchmarked)*** 5.NF.B.7a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.*
 - 5.NF.B.7b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.*
 - 5.NF.B.7c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$ -cup servings are in 2 cups of raisins?*

5.NBT.A. Understand the place value system

- 5.NBT.A.2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

5.NBT.B. Perform operations with multi-digit whole numbers and with decimals to hundredths

- 5.NBT.B.7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
**(benchmarked).*

5.MD.A. Convert like measurement units within a given measurement system.

- 5.MD.A.1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Essential Questions:

- How can we use real-life experiences to construct meanings for fractions and decimals?
- How can we decide when to use an exact answer and when to use an estimate?
- How does the location of a number in a place-value system affect the value of the number?
- How is place value used to round numbers?
- What is the significance of the decimal point?
- How do we measure volume?

Enduring Understanding:

Learning Goal 1: Multiply fractions by whole numbers and fractions by fractions, drawing visual models to represent products, showing $(a/b) \times (c/d) = ab(1/bd)$, and creating story contexts.

Learning Goal 2: Explain how a product is related to the magnitude of the factors, including cases in which one factor is a fraction greater than 1 and cases in which one factor is a fraction less than 1.

Learning Goal 3: Solve real-world problems involving multiplication of fractions (including mixed numbers), using visual fraction models or equations to represent the problem.

Learning Goal 4: Divide a unit fraction by a non-zero whole number and interpret by creating a story context or visual fraction model.

Learning Goal 5: Divide a whole number by a unit fraction and interpret by creating a story context or visual fraction model.

Learning Goal 6: Solve real-world problems involving division of unit fractions by whole numbers or whole numbers by unit fractions.

Learning Goal 7: Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10; represent powers of 10 using whole-number exponents.

	<p>Learning Goal 8: Add, subtract, multiply, and divide decimals to hundredths using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; explain the reasoning used, relating the strategy to the written method.</p> <p>Learning Goal 9: Convert standard measurement units within the same system (e.g., centimeters to meters) in order to solve multi-step problems.</p>
<p>Knowledge and Skills:</p> <p>Concept 1: Multiplication as resizing (scaling)</p> <p>Concept 2: Measurement units can be converted within a given measurement system.</p>	<p>Demonstration of Learning: <i>Students are able to: (TLWBAT/SWBAT):</i></p> <p>Objective 1: multiply fractional side lengths to find areas of rectangles.</p> <p>Objective 2: represent fraction products as rectangular areas.</p> <p>Objective 3: multiply a fraction by a whole number.</p> <p>Objective 4: multiply a fraction by a fraction, in general, if q is a fraction c/d, then $(a/b) \times (c/d) = a(1/b) \times c(1/d) = ac \times (1/b)(1/d) = ac(1/bd) = ac/bd$.</p> <p>Objective 5: compare the size of a product to the size of one of its factors, considering the size of the other factor (at least one factor is a fraction).</p> <p>Objective 6: explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number.</p> <p>Objective 7: explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number.</p> <p>Objective 8: explain that multiplying a given number by a fraction equivalent to 1 does not change the product.</p> <p>Objective 9: multiply fractions and mixed numbers in order to solve real world problems.</p>

Objective 10: represent the solution to these real world problems with visual fraction models and equations.

Objective 11: use a story context to interpret division of a unit fraction by a whole number.

Objective 12: divide of a unit fraction by a whole number and represent with visual fraction models.

Objective 13: use a story context to interpret division of a whole number by a unit fraction.

Objective 14: divide of a whole number by a unit fraction and represent with visual fraction models.

Objective 15: divide unit fractions by whole numbers to solve real-world problems, using visual fraction models and equations to represent the problem

Objective 16: divide whole numbers by unit fractions to solve real-world problems, using visual fraction models and equations to represent the problem.

Objective 17: explain patterns in the placement of the decimal point when multiplying or dividing a decimal by powers of 10.

Objective 18: write powers of 10 using whole-number exponents.

Objective 19: add and subtract decimals to hundredths using concrete models and drawings.

Objective 20: multiply and divide decimals to hundredths using concrete models and drawings.

Objective 21: add, subtract, multiply, and divide decimals to hundredths using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

	<p>Objective 22: relate the strategy to the written method and explain the reasoning used.</p> <p>Objective 23: convert from one measurement unit to another within a given measurement system (e.g., convert 5 cm to 0.05 m, convert minutes to hours).</p> <p>Objective 23: solve multi-step, real world problems that require conversions.</p>	
<p>Core Instructional and Supplemental Materials: Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. <i>McGraw-Hill Education: My Math 5</i> McGraw-Hill Education, 2016.</p> <ul style="list-style-type: none"> • “Model the Math” activities in Teacher Edition for each lesson • “Literature Connection” found in Teacher Edition for each lesson • “Real-World Problem Solving Reader” • RTI Differentiated Instruction / ELL Support for each chapter • Laptops • Math centers/stations • Video tutorials for anticipatory set/guided visuals • Anchor charts created by teachers • Reference sheets created by teachers • Vocabulary Activities/Math Word Wall • Problem of the day(s)/Weeks 	<p>Technology Integration</p> <ul style="list-style-type: none"> • www.ixl.com • www.softschools.com • www.mathisfun.com • www.jmathpage.com • www.illuminations.nctm.org • www.k5mathteachingresources.com • www.k-5learning.com • www.smartexchange.com(interactive smartboard tools) • www.buzzmath.com • www.math-drills.com • www.splashmath.com • https://www.education.com • https://www.khanacademy.org/ • https://www.desmos.com/ • www.aaamath.com • www.xtramath.com • https://www.illustrativemathematics.org/ • http://www.nctm.org/ • http://nlvm.usu.edu/ • http://illuminations.nctm.org/ • https://www.explorellearning.com/ 	<p>Illustrative Mathematics</p> <p>5.NF.B.4b New Park</p> <p>5.NF.B.5 Comparing Heights of Buildings</p> <p>5.NF.B.5 Grass Seedlings</p> <p>5.NF.B.5b Mrs. Gray's Homework Assignment</p> <p>5.NF.B.6 To Multiply or not to multiply?</p> <p>5.NF.B.7 Banana Pudding</p> <p>5.NBT.A.2 Multiplying Decimals by 10</p> <p>5.NBT.A.2 Marta's Multiplication Error</p> <p>5.NBT.B.7 The Value of Education</p> <p>5.MD.A.1, 5.NF.B.3 Converting Fractions of a Unit into a Smaller Unit</p>
<p>Suggested Activities:</p> <p>Order of Operations activity</p>	<p>Digits place value activity (quantitative relationships)</p>	<p>Scientific Notation of Solar System Evaluating Numerical Expressions matching game</p>

Formative/Summative/Benchmark Assessments:

Diagnostic Assessment (as Pre-Assessment): Assesses a student's strengths, weaknesses, knowledge, and skills prior to instruction.

- STAR 360, iXL, Pre-assessments per grade level
- Summer packet review
- Daily Problem of the Day
- Diagnostic Pre-Chapter Assessment "Am I Ready" for each chapter

Formative Assessments: Assesses a student's performance during instruction, and usually occurs regularly throughout the instruction process.

- Writing Prompts, Journals, and Portfolios, Do-Now(s), Exit Tickets, iXL (performance assessments), Hands on Labs, Projects, Menu Choice boards, Anticipatory Sets, Problem of the Week

Summative Assessments: Measures a student's achievement at the end of instruction.

- Diagnostic Quizzes, Activities, Tasks, Challenge Problems, Unit Tests, Chapter Tests, End of Unit Writing Submissions, End of Unit Projects, Benchmark Assessments, midterms and finals (if applicable per grade level)
- Assessment Masters – Diagnostic Test for each unit Chapter Test – on level (2A)
- STAR 360 benchmark assessments

Criterion-Referenced Assessment: Measures a student's performance against a goal, specific objective, or standard.

Norm-Referenced Assessment: Compares a student's performance against other students (a national group or other "norm")

- Alternate Assessments

Interim/Benchmark Assessment

Evaluates student performance at periodic intervals, frequently at the end of a grading period. Can predict student performance on end-of-the-year summative assessments.

Unit 3: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs 	<ul style="list-style-type: none"> ❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ E-Dictionaries, bilingual dictionaries ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests with various types of questions ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
At Risk	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Partner work ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
IEP/504	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

	<ul style="list-style-type: none"> ❖ Use of technology ❖ Provide word boxes ❖ Use of a calculator ❖ Present fewer multiple choice answers ❖ Acknowledge alternate responses such as pictures and/or verbal instead of written ❖ Teacher may scribe for student ❖ Oral assessment instead of written 	<ul style="list-style-type: none"> ❖ Use of technology ❖ Small group/one-to-one instruction ❖ Teach information processing strategies ❖ Chunking ❖ Frequent checks for understanding ❖ Access to teacher created notes ❖ Use of visual and multisensory formats ❖ Use of assistive technology ❖ Use of prompts ❖ Vocabulary walls and anchor charts available ❖ Provide a Study Guide ❖ Graphic organizers ❖ Teacher modeling or anchor charts on board ❖ Provide multi-level reading material ❖ Chunk learning into smaller segments ❖ Small group instruction 	
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Instructional Routines for Core Instructional Delivery

<p>Collaborative Problem Solving Connect Previous Knowledge to New Learning Making Thinking Visible Develop and Demonstrate Mathematical Practices Inquiry-Oriented and Exploratory Approach Multiple Solution Paths and Strategies</p>	<p>Use of Multiple Representations Explain the Rationale of your Math Work Quick Writes Pair/Trio Sharing Turn and Talk Charting Gallery Walks Small Group and Whole Class Discussions Student Modeling</p>	<p>Analyze Student Work Identify Student’s Mathematical Understanding Identify Student’s Mathematical Misunderstandings Interviews Role Playing Diagrams, Charts, Tables, and Graphs Anticipate Likely and Possible Student Responses Collect Different Student Approaches</p>	<p>Multiple Response Strategies Asking Assessing and Advancing Questions Revoicing Marking Recapping Challenging Pressing for Accuracy and Reasoning Maintain the Cognitive Demand</p>
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Content Area:	Grade Level : 5th grade
Unit 4: Coordinate Geometry and Classifying Figures	Time Frame: May - June
Interdisciplinary Connections	
<p>NGSS Connection:</p> <p>Matter and Its Interactions</p> <ul style="list-style-type: none"> • 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. <p>Earth's Place in the Universe</p> <ul style="list-style-type: none"> • 5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. <p>Earth's Systems</p> <ul style="list-style-type: none"> • 5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. <p>ELA Connection:</p> <p>Fluency</p> <ul style="list-style-type: none"> • RF.1.4. Read with sufficient accuracy and fluency to support comprehension. <p>Progress Indicators for Writing</p> <ul style="list-style-type: none"> • W.5.2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly. <ul style="list-style-type: none"> ○ B. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. 	

- D. Use precise language and domain-specific vocabulary to inform about or explain the topic.
- E. Provide a conclusion related to the information of explanation presented. Comprehension and Collaboration.

Comprehension and Collaboration

- SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
 - A. Explicitly draw on previously read text or material and other information known about the topic to explore ideas under discussion.
- SL.5.2. Summarize a written text read aloud or information presented in diverse media and formats (e.g., visually, quantitatively, and orally).
- SL.5.4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Reading Informational Text Key Ideas and Details

- RI.5.1. Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
- RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
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- RI.5.7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
- RI.5.8. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

Career Ready Practices

CRP2. Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

CRP4. Communicate clearly and effectively and with reason.

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

CRP6. Demonstrate creativity and innovation.

Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

CRP12. Work productively in teams while using cultural global competence.

Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

9.1 Personal Financial Literacy: By the end of grade 8, students will be able to:

STRAND A: INCOME AND CAREERS

9.1.8.A.5 Relate how the demand for certain skills determines an individual’s earning power.

STRAND D: PLANNING, SAVING, AND INVESTING

9.1.8.D.4 Distinguish between income and investment growth.

9.2 Career Awareness, Exploration, and Preparation: By the end of grade 8, students will be able to:

STRAND B: CAREER EXPLORATION

- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Technology Standards (8.1 and 8.2)

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.

D. Technology Operations and Concepts: *Students demonstrate a sound understanding of technology concepts, systems and operations.*

Understand and use technology systems.

8.1.8.A.1: Demonstrate knowledge of a real world problem using digital tools.

Select and use applications effectively and productively.

8.1.8.A.3: Use and/or develop a simulation that provides an environment to solve a real world problem or theory.

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.

D. Digital Citizenship: *Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.*

Advocate and practice safe, legal, and responsible use of information and technology.

Exhibit leadership for digital citizenship.

8.1.8.D.4: Assess the credibility and accuracy of digital content.

8.1.8.D.5: Understand appropriate uses for social media and the negative consequences of misuse.

Unit 4: Coordinate Geometry and Classifying Figures

Standards:

5.NF.B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions

- 5.NF.B.7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. ***(benchmarked)**.
 - 5.NF.B.7c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. ***For example, how much chocolate will each person get if 3 people share $\frac{1}{2}$ lb of chocolate equally? How many $\frac{1}{3}$ -cup servings are in 2 cups of raisins?***

5.NBT.B. Perform operations with multi-digit whole numbers and with decimals to hundredths

- 5.NBT.B.5. Fluently multiply multi-digit whole numbers using the standard algorithm. ***(benchmarked)**.
- 5.NBT.B.7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. ***(benchmarked)**.

5.G.A. Graph points on the coordinate plane to solve real-world and mathematical problems.

- 5.G.A.1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
- 5.G.A.2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
- 5.OA.A.3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

5.G.B. Classify two-dimensional figures into categories based on their properties.

- 5.G.B.3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*
- 5.G.B.4. Classify two-dimensional figures in a hierarchy based on properties.

5.MD. B. Represent and interpret data.

- 5.MD.B.2. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

Essential Questions:

- What types of data can be graphed on a line plot with a fractional scale?
- How are products and quotients related?
- Why would one need to convert measurements from one unit to another?
- How does one know whether the new answer should be a bigger or smaller number of units?
- How does one classify two-dimensional figures?
- Why would one need to classify a two-dimensional figure?
- Why would one graph on a coordinate plane?
- How are coordinate points related to patterns?

Enduring Understanding:

Learning Goal 1: Represent real world and mathematical problems by graphing points defined by whole number coordinates in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Learning Goal 2: Generate two numerical patterns from two given rules, identify the relationship between corresponding terms, create ordered pairs and graph the ordered pairs.

Learning Goal 3: Classify two-dimensional figures in a hierarchy based on properties.

Learning Goal 4: Make a line plot to display a data set in measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$) and use it to solve problems involving the four operations on fractions with unlike denominators.

Learning Goal 5: Fluently multiply multi-digit whole numbers with accuracy and efficiency.

Learning Goal 6: Add, subtract, multiply, and divide decimals to hundredths using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; explain the reasoning used, relating the strategy to the written method.

Learning Goal 7: Solve real world problems involving division of unit fractions by whole numbers or whole numbers by unit fractions.

Knowledge and Skills:

Concept 1: Attributes belonging to a category of two-dimensional figures also belong to *all* subcategories of that category.

Demonstration of Learning:

Students are able to: (TLWBAT/SWBAT):

Objective 1: graph points defined by whole number coordinates in the first quadrant of the coordinate plane in order to represent real world and mathematical problems.

Objective 2: interpret coordinates in context.

Concept 2: Coordinate plane as perpendicular number lines.

Concept 3: Perpendicular number lines (axes) define a coordinate system.

Concept 4: Intersection of the lines (origin) coincides with the 0 on each number line.

Concept 5: Given points in the plane is located using an ordered pair of numbers (coordinates).

Concept 6: First numbers in an ordered pair indicates how far to travel from the origin in the direction of the x-axis.

Concept 7: Second numbers in an ordered pair indicate how far to travel in the direction of the y-axis.

Objective 3: use two rules to create two numerical patterns.

Objective 4: compare corresponding terms (e.g. compare the first terms in each list, compare the second terms in each list, etc).

Objective 5: identify the relationship between corresponding terms and write ordered pairs.

Objective 6: graph the ordered pairs.

Objective 7: classify two-dimensional figures (triangles, quadrilaterals) based on shared attributes (e.g. parallel sides, number of sides, angle size, side length, etc.).

Objective 8: arrange the categories/subcategories of figures (e.g. squares, rectangles, trapezoids, etc) in a hierarchy based on attributes.

Objective 9: identify attributes of a two-dimensional shape based on attributes of the categories to which it belongs.

Objective 10: use measurement information to create a line plot.

Objective 11: using measurement information presented in line plots, add, subtract, multiply and divide fractions in order to solve problems.

Objective 12: multiply multi-digit whole numbers with accuracy and efficiency.

Objective 13: add and subtract decimals to hundredths using concrete models and drawings.

Objective 14: multiply and divide decimals to hundredths using concrete models and drawings.

Objective 15: add, subtract, multiply, and divide decimals to hundredths using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

	<p>Objective 16: relate the strategy to the written method and explain the reasoning used.</p> <p>Objective 17: use a story context to interpret division of a unit fraction by a whole number.</p> <p>Objective 18: use a story context to interpret division of a whole number by a unit fraction.</p> <p>Objective 19: divide unit fractions by whole numbers to solve real world problems, using visual fraction models and equations to represent the problem.</p> <p>Objective 20: divide whole numbers by unit fractions to solve real world problems, using visual fraction models and equations to represent the problem.</p>	
<p>Core Instructional and Supplemental Materials: Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. <i>McGraw-Hill Education: My Math 5</i> McGraw-Hill Education, 2016.</p> <ul style="list-style-type: none"> • “Model the Math” activities in Teacher Edition for each lesson • “Literature Connection” found in Teacher Edition for each lesson • “Real-World Problem Solving Reader” • RTI Differentiated Instruction / ELL Support for each chapter • Laptops • Math centers/stations • Video tutorials for anticipatory set/guided visuals • Anchor charts created by teachers • Reference sheets created by teachers • Vocabulary Activities/Math Word Wall • Problem of the day(s)/Weeks 	<p>Technology Integration</p> <ul style="list-style-type: none"> • www.ixl.com • www.softschools.com • www.mathisfun.com • www.jmathpage.com • www.illuminations.nctm.org • www.k5mathteachingresources.com • www.k-5learning.com • www.smartexchange.com(interactive smartboard tools) • www.buzzmath.com • www.math-drills.com • www.splashmath.com • https://www.education.com • https://www.khanacademy.org/ • https://www.desmos.com/ • www.aaamath.com • www.xtramath.com • https://www.illustrativemathematics.org/ • http://www.nctm.org/ • http://nlvm.usu.edu/ • http://illuminations.nctm.org/ 	<p>Illustrative Mathematics</p> <p>5.G.A.1 Battle Ship Using Grid Paper</p> <p>5.G.A.2 Meerkat Coordinate Plane Task</p> <p>5.OA.B.3 Sidewalk Patterns</p> <p>5.G.B.3 Always, Sometimes, Never</p> <p>5.G.B.4 What is a Trapezoid? (Part 2)</p> <p>5.MD.B.2 5.NF.A.1 Fractions on a Line Plot</p> <p>5.NBT.B.7, 5.NF.B.3 What is 23 divided by 5?</p> <p>5.NF.B.7c Salad Dressing</p>

<p>Suggested Activities:</p> <p>Prices of Books Line Plots Measuring and Creating Line Pots</p>	<p>Line Plots of Fraction Measurements - Engage NY Lesson 1</p>	<p>Rainfall and Measurement Line Plots - Engage NY Lesson 1</p>
<p>Formative/Summative/Benchmark Assessments:</p> <p>Diagnostic Assessment (as Pre-Assessment): Assesses a student’s strengths, weaknesses, knowledge, and skills prior to instruction.</p> <ul style="list-style-type: none"> • STAR 360, iXL, Pre-assessments per grade level • Summer packet review • Daily Problem of the Day • Diagnostic Pre-Chapter Assessment “Am I Ready” for each chapter <p>Formative Assessments: Assesses a student’s performance during instruction, and usually occurs regularly throughout the instruction process.</p> <ul style="list-style-type: none"> • Writing Prompts, Journals, and Portfolios, Do-Now(s), Exit Tickets, iXL (performance assessments), Hands on Labs, Projects, Menu Choice boards, Anticipatory Sets, Problem of the Week <p>Summative Assessments: Measures a student’s achievement at the end of instruction.</p> <ul style="list-style-type: none"> • Diagnostic Quizzes, Activities, Tasks, Challenge Problems, Unit Tests, Chapter Tests, End of Unit Writing Submissions, End of Unit Projects, Benchmark Assessments, midterms and finals (if applicable per grade level) • Assessment Masters – Diagnostic Test for each unit Chapter Test – on level (2A) • STAR 360 benchmark assessments <p>Criterion-Referenced Assessment: Measures a student’s performance against a goal, specific objective, or standard.</p> <p>Norm-Referenced Assessment: Compares a student’s performance against other students (a national group or other “norm”)</p> <ul style="list-style-type: none"> • Alternate Assessments <p>Interim/Benchmark Assessment</p> <p>Evaluates student performance at periodic intervals, frequently at the end of a grading period. Can predict student performance on end-of-the-year summative assessments.</p>		

Unit 4: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs 	<ul style="list-style-type: none"> ❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ E-Dictionaries, bilingual dictionaries ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests with various types of questions ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
At Risk	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Partner work ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
IEP/504	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

	<ul style="list-style-type: none"> ❖ Use of technology ❖ Provide word boxes ❖ Use of a calculator ❖ Present fewer multiple choice answers ❖ Acknowledge alternate responses such as pictures and/or verbal instead of written ❖ Teacher may scribe for student ❖ Oral assessment instead of written 	<ul style="list-style-type: none"> ❖ Use of technology ❖ Small group/one-to-one instruction ❖ Teach information processing strategies ❖ Chunking ❖ Frequent checks for understanding ❖ Access to teacher created notes ❖ Use of visual and multisensory formats ❖ Use of assistive technology ❖ Use of prompts ❖ Vocabulary walls and anchor charts available ❖ Provide a Study Guide ❖ Graphic organizers ❖ Teacher modeling or anchor charts on board ❖ Provide multi-level reading material ❖ Chunk learning into smaller segments ❖ Small group instruction 	
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Instructional Routines for Core Instructional Delivery

<p>Collaborative Problem Solving Connect Previous Knowledge to New Learning Making Thinking Visible Develop and Demonstrate Mathematical Practices Inquiry-Oriented and Exploratory Approach Multiple Solution Paths and Strategies</p>	<p>Use of Multiple Representations Explain the Rationale of your Math Work Quick Writes Pair/Trio Sharing Turn and Talk Charting Gallery Walks Small Group and Whole Class Discussions Student Modeling</p>	<p>Analyze Student Work Identify Student’s Mathematical Understanding Identify Student’s Mathematical Misunderstandings Interviews Role Playing Diagrams, Charts, Tables, and Graphs Anticipate Likely and Possible Student Responses Collect Different Student Approaches</p>	<p>Multiple Response Strategies Asking Assessing and Advancing Questions Revoicing Marking Recapping Challenging Pressing for Accuracy and Reasoning Maintain the Cognitive Demand</p>
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