VERNON TOWNSHIP
SCHOOL DISTRICT

Math Grade 5 Accelerated
Curriculum Map

Adapted from:
Understanding By Design

Reviewed by:
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Adopted:
August 2025

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Course Description

Based upon the following list of proficiencies, each student must demonstrate a minimum competency level of 65%. Competencies will be measured by way of an evaluation program consisting of teacher observations of student performance, tests, quizzes, classwork, homework, projects, and class participation, as well as class attendance in accordance with the high school's attendance policy. Students in the accelerated class are expected to engage with material at a deeper level, showing higher-order thinking and application of concepts.

Various Levels of Text: Supplemental text and audio visual materials are provided for above grade level and below grade level for students who need them.

AI tools and Text to Speech tools may be used to adapt the lexile level of grade level materials.

New Jersey Learning Standards covered throughout the course

In conjunction with the New Jersey Student Learning Standards, students enrolled in the **Illustrative Mathematics** courses will demonstrate the ability to:

- 5.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents 10 times what it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.
- 5.NBT.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.3 Read, write, and compare decimals to thousandths.
- 5.NBT.3a Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 x 100 + 4 x 10 + 7 x 1 + 3 x (
- $\frac{1}{10}$) + 9 x ($\frac{1}{100}$) + 2 x ($\frac{1}{1000}$)
- 5.NBT.3b 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.4 Use place value understanding to round decimals to any place.
- 5.NBT.B.5 With accuracy and efficiency, multiply multi-digit whole numbers using the standard algorithm.
- 5.NBT.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.NBT.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 subtractions; relate the strategy to a written method and explain the reasoning

used.

- 5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
- 5.OA.2 Write and interpret numerical expressions without evaluating them.
- 5.OA.B Analyze patterns and relationships
- 5.OA.B3 Generate two numerical patterns using two given rules. Identify apartment relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.
- 5.NF.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.
- 5.NF.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 fractions models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.
- 5.NF.3 Interpret a fraction as as division of the numerator by the denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
- 5.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
- 5.NF.4a Interpret the product $\frac{a}{b} \times q$ as a part of a partition of q into b equal parts, and the result of $a \times q \div b$.
- 5.NF.4b Find the area of a rectangle with fractional side lengths by tilting 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 the areas of rectangles, and represent fraction products as rectangular areas.
- 5.NF.5 Interpret multiplication as scaling (resizing).
- 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 $\frac{a}{b} = \frac{(n \times a)}{(n \times b)}$ to the effect of multiplying $\frac{a}{b}$ by 1.
- 5.NF.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.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole number by unit fractions.
- 5.NF.7a Interpret division of a unit fraction by a non-zero whole number, and compute such qotients. Create a story context and use visual fraction model to show the quotient.
- 5.NF.7b Interpret division of a whole number by a unit fraction, and compute quotients. Create a story context and use visual fraction model to show the quotient.
- 5.NF.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.
- 5.MD.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.
- 5.M.B.2 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
- 5.M.B.2 a. 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.M.B.2 b. 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.M.B.3 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units.
- 5.M.B.4 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
- 5.MD.4a Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and relate it to the product of the edge lengths, and to the product of the height and the area of the base.
- 5.MD.4b 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.4c 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.DL.A.1 Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns.
- 5.DL.A.2 Develop strategies to collect, organize and represent data of various types and from various sources. Communicate results digitally through a data visual (e.g. chart, storyboard, video presentation).
- 5.DL.A.3 Collect and clean data to be analyzable (e.g., make sure each entry is formatted correctly, deal with missing or incomplete data).
- 5.DL.A.4 Using appropriate visualizations (i.e. double line plot, double bar graph), analyze data across samples.
- 5.DL.B.5 Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). 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.
- 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.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
- 5.G.4 Classify two-dimensional figures in a hierarchy based on properties.

Grading Criteria
• Participation - 10% • Tests/Projects - 40% • Quizzes - 30%

- Homework - 20%

Course Resources
Core Text: • **Text:** IM v360 • **Text:** IM v 360 consumables **Technologies** • Students have 1:1 Chromebook access • Online IM v 360 student/teacher access to the digital platform • iReady Path for students • Smartboard **Supplemental Materials** • Learning Plans (Weekly agenda on Schoology) • Extra Practice (online IM v 360 student platform) • Homework (Teacher created weekly homework sheet) • Learning Stations (Created by the teacher using teacher created materials, curriculum and manipulatives) • Exit Tickets/Cool Down (Problems from the textbook, google forms, teacher created materials) • Project-Based Learning Activities (created by the teacher)

Scope and Sequence- Topical Outline		
Unit	Title	Time
1	Finding Volume	4 Weeks
2	Fractions as Quotients and Fraction Multiplication	4 Weeks
3	Multiplying and Dividing Fractions *(includes Climate Change Mandate)*	4 Weeks
4	Wrapping Up Multiplication and Division with Multi-Digit Numbers *(includes DEI Mandate)*	5 Weeks
5	Place Value Patterns and Decimal Operations	4 Weeks

6	More Decimal and Fraction Operations	4 Weeks
7	Shapes on the Coordinate Plane *(includes Climate Change and DEI Mandate)*	4 Weeks
8	Putting It All Together	3 Weeks
9	Ratios	2 Weeks
10	Percent	2 Weeks

The timeline is only an approximation. The inclusion of a classroom project in any one of the above units would extend the time allotment.

Subject Area: Math **Grade Level: 5**	
Unit	**1 - Finding Volume**
Timeframe	4 Weeks
Established Goals	• Students will find the volume of right rectangular prisms and solid figures composed of two right rectangular prisms.
NJSLS	• MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.6 Attend to precision. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning. • 5.M.B.2 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. • 5.M.B.2 a. 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.M.B.2 b. 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.M.B.3 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units. • 5.M.B.4 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. • 5.MD.4a Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and relate it to the product of the edge lengths, and to the product of the height and the area of the base. • 5.MD.4b 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.4c 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.
Essential Questions	• How do you measure volume by counting unit cubes and understand that different shapes can have the same volume? • How do you find the volume of a rectangular prism by analyzing their structure and relating it to multiplication? • How can you express volume as the product of length, width, and height, and as the product of the base area and height? • How do you use volume to solve real world problems involving figures composed of multiple rectangular prisms?
Content Knowledge	*Students will learn:* • To understand that solid objects have measurable attributes. One of these attributes is **volume**, which is defined as the amount of space taken up by an object. • To understand that volume is the amount of unit cubes that fills a space. • To find the volume of a rectangular prism, using its layered structure. • To apply their understanding of the layered structure of rectangular prisms to find the volume of a prism when they cannot see all of the cubes. • To formalize the language they use to describe the side lengths of a rectangular prism. • To use their understanding of the structure of a rectangular prism to find volume and write numerical expressions to represent volume.

	● To find the volume of rectangular prisms in cubic centimeters, cubic inches, and cubic feet. ● To recognize the structure of a solid figure made up of two non-overlapping right rectangular prisms and understand that its volume is the sum of the volumes of the two rectangular prisms. ● To find the volume of a figure composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts. ● To write, interpret, and evaluate numerical expressions that represent the volumes of solid figures composed of two right rectangular prisms. ● To apply what they have learned about finding the volumes of right rectangular prisms, and figures composed of right rectangular prisms, to solve real-world problems. ● To use their understanding of the volume of rectangular prisms to solve a real-world problem.
Skills	*Students will be able to:* ● Counting Unit Cubes: Students initially measure volume by physically or visually counting the number of unit cubes that fill a shape. ● Analyzing Structure: Students analyze the structure of rectangular prisms, relating the number of layers and cubes per layer to the total volume. ● Multiplication: Students apply their knowledge of multiplication to calculate volume using the product of side lengths or the product of base area and height. ● Problem-Solving: Students apply their understanding of volume to solve real-world problems involving composite figures made up of multiple rectangular prisms.
Performance Tasks	● Lesson 12- Tons and Tons of Garbage ○ Students will use math to investigate a real-world situation that each city and country has to think about: what to do with their garbage. “What were some assumptions we thought about today as we made our estimates? How did the assumptions we make affect our estimates?” (We assumed that there were more shipping containers below deck, which made our estimate higher. We assumed that there were other structures taking up space on the ship, which made our estimate lower.) ● iReady (Student Individualized Path Work) ● Project-Based Learning Activities
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Pre-Assessment – Given before a unit or topic to gauge prior knowledge.

	• NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) • Problem of the Day/Warm Up – A quick daily question to review or reinforce concepts. • Guided Practice/Learning Activities/Launch – Teacher-monitored activities where students practice new skills with support. • Check for Understanding/Lesson Synthesis – Informal questioning, thumbs-up/down, or whiteboard responses to gauge comprehension. • Section Checkpoint- 3 or 4 problem assessment of learning goals • Exit Ticket/Cool Down – A short problem or question at the end of a lesson to assess learning. • Class Discussions – Encouraging students to explain their thinking and reasoning aloud. **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) • End of Unit Test • Quizzes- Each section provides practice problems that can be used for this type of assessment • Performance Tasks – Real-world applications of math concepts that require problem-solving. • Projects – A culminating project **Alternative Assessment** (Non-traditional ways of assessing understanding) • Leveled Independent Practice/Classwork – Differentiated work based on student ability. • Homework – Provides additional practice but is not always a direct measure of understanding. • Math Journals – Students write about their math thinking and problem-solving strategies. • Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. • Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. • Project-Based Learning (PBL) – Real-world application (See performance tasks)
Resources/Materials	**Text:** • **Text:** Illustrative Mathematics IMV. 360 Grade 5 Consumable Text • **Text:** Teacher's Edition Illustrative Mathematics Grade 5 **Technologies** • Students have 1:1 Chromebook access • Online IMv. 360 Grade 5 student/teacher access to the digital platform • iReady My Path for students • Smart board • Schoology learning management system • Quizizz, Kahoot, Gimkit, 99 Math, Number, Blooket for gamification **Supplemental Materials** • Digital Black Line Master materials for homework and additional practice • Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials)

	• Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Learning Activities	• Warm up • Instructional activities • Lesson synthesis • Cool Down
Interdisciplinary Connections	**Science & Volume Measurement** (NJ Science Standard 5-PS1-3: Make observations and measurements to identify materials based on their properties) • **Connection:** Students can explore how the volume of different materials (e.g., liquids, solids) affects their real-world applications. They can measure the volume of various containers using unit cubes and then compare those measurements to real-world uses, such as determining which containers are best for storing certain substances in a science experiment. This reinforces the **concept of volume measurement (5.M.B.2, 5.M.B.3)** while applying it to material properties in science. **Architecture & Volume in Art/Design** (NJ Visual & Performing Arts Standard 1.5.5.Cr1b: Develop criteria to guide making a work of art or design to meet an identified goal) • **Connection:** Students can design and build simple architectural models using rectangular prisms, calculating the volume of their structures using **V = l × w × h** (5.MD.4b). They can create 3D blueprints, considering how volume affects space usage in buildings or packaging design.

Subject Area: Math **Grade Level: 5**	
Unit	**2 - Fractions as Quotients and Fraction Multiplication**
Timeframe	4 Weeks
Established Goals	Students develop an understanding of fractions as the division of the numerator by the denominator, that is a ÷ b = a/b, and solve problems that involve the multiplication of a whole number and a fraction, including fractions greater than 1.
NJSLS	• MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically.

	• MP.7 Look for and make use of structure. • 5.NF.B.3 Interpret a fraction as a division of the numerator by the denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. • 5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product $\left(\frac{a}{b}\right) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. b. 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.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.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.
Essential Questions	• How do you express a fraction as a division problem? • How do you multiply a whole number by a fraction? • How is fraction multiplication connected to the idea of equal groups and the areas of rectangles?
Content Knowledge	*Students will learn:* • To relate equal shares of objects to division and to fractions. • To relate equal shares to division expressions and visual representations of fractions.

	• To write equations to represent division situations and relate each part of the equation to the situation. • To solve division problems when the quotient is a fraction or mixed number. • to explain why a ÷ b = a/b and apply their understanding to flexibly interpret division situations and equations where the unknown is the numerator, denominator, or the value of the quotient. • To understand that dividing an amount into a whole number of equal parts can be interpreted as multiplying the same amount by a unit fraction. • To solve problems involving multiplication of whole numbers by unit fractions and represent the problems with equations and diagrams. • To represent and solve problems involving a non-unit fraction. • To calculate the area of a rectangle whose side lengths are a unit fraction and a whole number in a way that makes sense to them. • To find the area of rectangles with one non-unit fractional side length and one whole number side length. • To find the area of a rectangle when one of the side lengths is a fraction greater than 1. • To apply what they know about multiplication of whole numbers and fractions to decompose a rectangle to find its area. • To analyze area diagrams and use the properties of operations to represent the area of rectangles. • To apply their understanding of multiplying a whole number by a fraction to solve mathematical and real-world problems. • To apply their understanding of the properties of operations to multiply whole numbers and fractions greater than 1 written as mixed numbers. • To reason about the value of the product of a whole number and a fraction greater than 1 and use the properties of operations to find the product. • To use multiplication of fractions to create and analyze a mosaic of rectangles.
Skills	*Students will be able to:* • Students will develop the skill of interpreting and writing division expressions as fractions. • They will also learn to multiply whole numbers by fractions, including fractions greater than 1 and mixed numbers. This involves understanding how to calculate the product and represent it visually. • Additionally, they will apply these skills to solve real-world problems involving division and multiplication of fractions.

Performance Tasks	• Lesson 17- Students create mosaics with rectangles and multiplied fractions to estimate the cost of the mosaics. “What are some other ways artists might use mathematics in their work?” (They might calculate the area of a space where they are going to paint a mural. They might estimate the amount of material they need to create a piece of art.) • iReady (student individualized path work) • Project-Based Learning Activities
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) • Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady • Pre-Assessment – Given before a unit or topic to gauge prior knowledge. • NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) • Problem of the Day/Warm Up – A quick daily question to review or reinforce concepts. • Guided Practice/Learning Activities/Launch – Teacher-monitored activities where students practice new skills with support. • Check for Understanding/Lesson Synthesis – Informal questioning, thumbs-up/down, or whiteboard **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) • End of Unit Test • Quizzes- Each section provides practice problems that can be used for this type of assessment • Performance Tasks – Real-world applications of math concepts that require problem-solving. • Projects – A culminating project **Alternative Assessment** (Non-traditional ways of assessing understanding) • Leveled Independent Practice/Classwork – Differentiated work based on student ability. • Homework – Provides additional practice but is not always a direct measure of understanding. • Math Journals – Students write about their math thinking and problem-solving strategies. • Peer or Self-Assessment – Students reflect on their work or assess a peer’s explanation. • Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. • Project-Based Learning (PBL) – Real-world application (See performance tasks)
Resources/Materials	**Text:** • **Text:** Illustrative Mathematics IMV. 360 Grade 5 Consumable Text • **Text:** Teacher’s Edition Illustrative Mathematics Grade 5 **Technologies** • Students have 1:1 Chromebook access • Online IMv. 360 Grade 5 student/teacher access to the digital platform • iReady My Path for students • Smart board

	• Schoology learning management system • Quizizz, Kahoot, Gimkit, 99 Math, Number, Blooket for gamification **Supplemental Materials** • Digital Black Line Master materials for homework and additional practice • Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) • Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Learning Activities	• Warm up • Instructional activities • Lesson synthesis • Cool Down
Interdisciplinary Connections	**Social Studies & Population Data** (NJ Social Studies Standard 6.1.5.GeoPP.4: Investigate how the cultural and environmental characteristics of places change over time.) • **Connection:** Students can analyze population growth or historical census data by applying **5.NF.3** to interpret fractions as division. For example, they can examine how a population was divided among different regions and express it as fractions or mixed numbers.

Subject Area: Math **Grade Level: 5**	
Unit	**3 -Multiplying and Dividing Fractions**
Timeframe	4 Weeks
Established Goals	• .Students extend multiplication and division of whole numbers to multiply fractions by fractions and divide a whole number and a unit fraction.
NJSLS	• MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others.

	• MP.4 Model with mathematics. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning • 5.NF.B Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. • 5.NF.4.a Interpret the product $\frac{a}{b} \times q$ as a part of a partition of q into b equal parts, and the result of $a \times q \div b$. • 5.NF.4.b Find the area of a rectangle with fractional side lengths by tilting 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 the areas of rectangles, and represent fraction products as rectangular areas. • 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. • 5.NF.B.7.a Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. Create a story context and use a visual fraction model to show the quotient. • 5.NF.B.7.b Interpret division of a whole number by a unit fraction, and compute quotients. Create a story context and use a visual fraction model to show the quotient. • 5.NF.B.7.c 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.
Climate Change Mandate	**5.NF.B.3** Interpret a fraction as division of the numerator by the denominator (i.e.,). 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 as the result of dividing 3 by 4, noting that multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size . 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? • **Climate Change Example**: To examine the impact climate change has on agriculture, students may solve word problems about the reduced yields of staple crops and their distribution that involve division of whole numbers and lead to answers in the form of fractions. **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 lb. of chocolate equally? How many -cup servings are in 2 cups of raisins?

	• **Climate Change Example:** To examine the impact climate change has on agriculture, students may solve real-world problems about the reduced yields of staple crops and their distribution that involve division of unit fractions by non-zero whole numbers and/or division of whole numbers by unit fractions.
Essential Questions	• How do you use area models to visualize multiplying fractions, connecting it to the concept of finding a fraction of a fraction? • What is the result of multiplying numerators and denominators? • How do you divide unit fractions and whole numbers? • How can you use tape diagrams to understand what it means to divide a whole number into fractional parts and to determine how many unit fractions are in a whole number?
Content Knowledge	*Students will learn:* • To interpret and represent a unit fraction of a unit fraction with diagrams. • To write and evaluate expressions given a diagram that represents the product of two unit fractions. • To represent products of unit fractions using diagrams and equations. • To represent the product of a unit fraction and a non-unit fraction with a diagram. • To calculate the product of a unit fraction and a non-unit fraction. • To calculate areas of rectangles where both side lengths are non-unit fractions. • To generalize strategies for calculating products of fractions. • To develop strategies for finding a product of two mixed numbers. • To apply what they have learned about fraction multiplication to solve problems. • To reason about the size of a quotient and consider the relationships between the dividend, divisor, and quotient. • To divide a unit fraction by a whole number. • To use diagrams and equations to represent division of a unit fraction by a whole number. • To solve division problems in a way that makes sense to them. • To solve problems involving division of a whole number by a unit fraction and write equations to represent them.

	● To write and solve problems that involve dividing a whole number by a unit fraction and a unit fraction by a whole number. ● To find quotients involving a whole number and a unit fraction and assess the reasonableness of their answers. ● To solve multiplication and division problems with fractions with an emphasis on making sense of the problems and the operation needed to solve them. ● To apply their understanding of fraction multiplication and division to solve problems in context. ● To use their understanding of fractions and division to make the largest and smallest expressions using given numbers. ● To apply what they've learned about multiplying and dividing fractions to solve problems related to recipes.
Skills	*Students will be able to:* ● Multiplying numerators and denominators: Students will learn the algorithm for multiplying fractions, which involves multiplying the numerators and the denominators of the fractions. ● Understanding division as finding the number of groups or the size of each group: Students will solidify their understanding of division in the context of fractions, focusing on two interpretations: finding how many groups of a unit fraction are in a whole number and finding the size of each part when a whole is divided into a certain number of unit fractions. ● Connecting multiplication and division: Through problem-solving, students will see the relationship between multiplication and division with fractions, recognizing that they can use either operation to solve certain problems.
Performance Tasks	● Lesson 20- Students used what we've learned about multiplying fractions and dividing whole numbers and unit fractions to solve a problem about a recipe. ○ "How were some of the relationships between the measuring tools and the amounts in the recipe helpful as you solved the problem today?" (I knew that I could make 2 out of groups of , which helped me think to divide 2 by to find how many quarter cups he needed to measure the flour. I knew that I could multiply by a whole number to get which helped me figure out how Noah could measure the brown sugar.) ● iReady (Student Individualized Path Work) ● Project-Based Learning Activities

Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Pre-Assessment – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Problem of the Day/Warm Up – A quick daily question to review or reinforce concepts. ● Guided Practice/Learning Activities/Launch – Teacher-monitored activities where students practice new skills with support. ● Check for Understanding/Lesson Synthesis – Informal questioning, thumbs-up/down, or whiteboard **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of Unit Test ● Quizzes- Each section provides practice problems that can be used for this type of assessment ● Performance Tasks – Real-world applications of math concepts that require problem-solving. ● Projects – A culminating project **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Math Journals – Students write about their math thinking and problem-solving strategies. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. ● Project-Based Learning (PBL) – Real-world application (See performance tasks)
Resources/Materials	**Text:** ● **Text:** Illustrative Mathematics IMV. 360 Grade 5 Consumable Text ● **Text:** Teacher's Edition Illustrative Mathematics Grade 5 **Technologies** ● Students have 1:1 Chromebook access ● Online IMv. 360 Grade 5 student/teacher access to the digital platform ● iReady My Path for students ● Smart board ● Schoology learning management system ● Quizizz, Kahoot, Gimkit, 99 Math, Number, Blooket for gamification **Supplemental Materials** ● Digital Black Line Master materials for homework and additional practice ● Learning Stations (Created by the teacher using teacher created materials and manipulatives) ● Checks for understanding (problems from the textbook, Google Forms, teacher-created materials)

	• Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Learning Activities	• Warm up • Instructional activities • Lesson synthesis • Cool Down
Interdisciplinary Connections	**Science & Fraction Multiplication** (NJ Science Standard 5-PS1-4: Conduct an investigation to determine whether the mixing of two or more substances results in new substances.) • **Connection:** Students can apply **5.NF.4** and **5.NF.6** by conducting science experiments involving fractional measurements of ingredients (e.g., combining ¾ of a cup of baking soda with ½ a cup of vinegar to observe a chemical reaction). They will use multiplication of fractions to calculate the total amount of substances used and analyze the proportional changes in their experiments. **Art & Area with Fractions** (NJ Visual & Performing Arts Standard 1.5.5.Cr1a: Brainstorm and collaborate on multiple approaches to a creative art or design problem.) • **Connection:** Students can create artwork by designing a quilt pattern or mosaic using rectangular sections with fractional side lengths. Applying **5.NF.4b**, they will calculate the area of each section using fractional multiplication and compare different scaling effects (**5.NF.5**). They can then interpret how resizing affects the overall artwork dimensions.

Diversity, Equity and Inclusion	Sample Activities Grades 3-5
	The Rich Tapestry of Religion in the United States
	• The three lesson unit helps students assess the religious diversity of the United States, explore different religious and non-religious worldviews, and consider how freedom of religion relates to their own lives and the lives of others.
	• **Operations with Whole Numbers and Decimals - NJSLS.MATH.5.NBT.B.7**
	  ○ Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value...
	  ○ If students are working with **percentages** or **decimals** (e.g., 23.4% of people follow X religion), this standard ties in when they're calculating or comparing values.

Subject Area: Math Grade Level: 5	
Unit	**4 - Wrapping Up Multiplication and Division with Multi-Digit Numbers**
Timeframe	5 Weeks
Established Goals	• Students will use the standard algorithm to multiply multi-digit whole numbers. • They will divide whole numbers up to four digits by two-digit divisors, using strategies based on place value and the properties of operations.
NJSLS	• MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.4 Model with mathematics. • MP.6 Attend to precision. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning. • 5.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents 10 times what it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left. • 5.NBT.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.5 With accuracy and efficiency, multiply multi-digit whole numbers using the standard algorithm. • 5.NBT.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.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. • 5.OA.2 Write and interpret numerical expressions without evaluating them.

	● 5.M.B.2 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. 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. b. 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.M.B.4 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
Essential Questions	● How do you use the standard algorithm for multiplication? ● How can you divide two numbers using various strategies including partial quotients? ● How do you use multiplication and divsion to solve real-world problems involving area and volume?
Content Knowledge	*Students will learn:* ● To make estimates and calculations of products. ● To multiply multi-digit whole numbers, using strategies based on place value and the properties of operations. ● To multiply multi-digit whole numbers, using partial products. ● To use the standard algorithm to multiply up to five-digit numbers by one-digit numbers.

	● To use the standard algorithm to multiply up to three-digit numbers by two-digit numbers, without composing a new unit. ● To understand and apply the standard algorithm for multiplication when multiplying three-digit numbers by two-digit numbers, with composition of new units. ● To multiply three-digit numbers by two-digit numbers, with any number of newly composed units. ● To use whole-number multiplication to solve problems. ● To estimate and solve multi-digit division problems in a way that makes sense to them. ● To use place-value understanding and the relationship between multiplication and division to divide multi-digit numbers. ● To learn a partial-quotients algorithm to divide multi-digit numbers by two-digit numbers. ● To deepen their understanding of a partial-quotients algorithm and use it to divide up to four-digit dividends by two-digit divisors. ● To practice using a partial-quotients algorithm. ● To find unknown side lengths of rectangles and rectangular prisms, using their understanding of area, volume, and multi-digit division. ● To estimate and solve multi-digit division with mixed-number quotients. ● To interpret sums of fractions as partial quotients. ● To estimate products and quotients, using a volume context. ● To find areas by multiplying side lengths in situations in which the side lengths are two- or three-digit numbers. ● To estimate and calculate products and quotients of whole numbers in order to understand the volume of recyclable plastic the United States ships abroad each year.
Skills	*Students will be able to:* ● Fluently multiply multi-digit whole numbers using the standard algorithm. ● Divide whole numbers up to four digits by two-digit divisors using strategies based on place value, properties of operations, and the relationship between multiplication and division. ● Solve real-world and mathematical problems involving area and volume using multiplication and division.
Performance Tasks	● Lesson 17- The purpose of this lesson is to estimate products and quotients, using a volume context.“How can you use multiplication to estimate how many days it would take your school to drink 10,000,000 cubic centimeters of milk?” (In 2 days, we drink twice as much milk, and in 3 days, we drink 3 times as much. So I needed to estimate what to multiply by the amount for one day to get about

	10,000,000.) ● Lesson 18- The purpose of this lesson is to find areas by multiplying side lengths in situations in which the side lengths are two- or three-digit numbers.“If the Great Pacific Garbage Patch was a rectangle, what could be its side lengths?” (It could be 1,600,000 kilometers by 1 kilometer but 1,600,000 kilometers is too long. It could be 1,250 kilometers by 1,250 kilometers. I could multiply one of the lengths of New Mexico by 5, so it could be about 3,000 kilometers by 550 kilometers.) ● Lesson 19- The purpose of this lesson is to estimate and calculate products and quotients of whole numbers in order to understand the volume of recyclable plastic the United States ships abroad each year.“Today we made estimates for the amount of recyclable plastic elementary schools might produce, and compared this with the amount of recyclable plastic that the United States ships abroad.” “What are some of the different estimates you made or worked with today?” (The volume of recycling bins, the amount of plastic we put in the bins each day, the number of schools and the amount of recyclable plastics shipped.) ● Lesson 20- The purpose of this lesson is for students to estimate and calculate products and quotients of whole numbers in order to understand the amount of food waste that is produced in the United States each year. “As we made our estimates, each of us came up with a different estimate for the same question. What were some reasons for our different estimates?” (We estimated different amounts of food waste that we produced in one day. We had different numbers of people in our families. We adjusted our estimates, based on what we knew about how people produce food waste.) ● Project-Based Learning Activities ● iReady (student individualized path work)
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Pre-Assessment – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Problem of the Day/Warm Up – A quick daily question to review or reinforce concepts. ● Guided Practice/Learning Activities/Launch – Teacher-monitored activities where students practice new skills with support. ● Check for Understanding/Lesson Synthesis – Informal questioning, thumbs-up/down, or whiteboard **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of Unit Test ● Quizzes- Each section provides practice problems that can be used for this type of assessment ● Performance Tasks – Real-world applications of math concepts that require problem-solving. ● Projects – A culminating project

	Alternative Assessment (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Math Journals – Students write about their math thinking and problem-solving strategies. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. ● Project-Based Learning (PBL) – Real-world application (See performance tasks)
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Learning Activities	● Warm up ● Instructional activities ● Lesson synthesis ● Cool Down
Interdisciplinary Connections	**Science & Powers of 10** (NJ Science Standard 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.) ● Connection: Students can explore how astronomers use powers of 10 to measure vast distances in space. Applying 5.NBT.2, they can analyze the difference between astronomical units (AU) and light-years, observing how multiplying by powers of 10 helps describe the scale of the universe. They can also use 5.OA.1 to interpret and simplify numerical expressions related to distances.

	Financial Literacy & Multi-Digit Computation (NJ Social Studies Standard 9.1.5.PB.3: Describe choices people make about how to spend and save money.) ● **Connection:** Students can apply **5.NBT.5** and **5.NBT.6** by solving multi-digit multiplication and division problems related to budgeting and saving money. For example, they can calculate total earnings from a part-time job over several months or determine how long it will take to save for an item given a specific weekly allowance.

Subject Area: Math Grade Level: 5	
Unit	**5 - Place Value Patterns and Decimal Operations**
Timeframe	4 Weeks
Established Goals	• Students will build from place value understanding in IM Grade 4 to recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the palace to its right and 1/10 of what it represents in the place to its left. Students use this place value understanding to round, compare, order, add, subtract, multiply, and divide decimals.
NJSLS	• MP.2 Reason abstractly and quantitatively. • MP.3 Construct viable arguments & critique the reasoning of others. • MP.6 Attend to precision. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning. • 5.NBT.A. Understand the place value system. 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. 2.. Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$. b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. 4. Use place value understanding to round decimals to any place. • 5.NF.B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions. 4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. • 5.NBT.B. Perform operations with multi-digit whole numbers and with decimals to hundredths. 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. • 5. OA.A. Write and interpret numerical expressions.

	1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. 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 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.
Essential Questions	● How do you read, write, compare and round decimals to the thousandths place? ● How do you add, subtract, multiply and divide decimals to the hundredths? ● How can you apply the same strategies for operations of whole numbers to decimals?
Content Knowledge	*Students will learn:* ● To recognize the unit of thousandths in relationship to tenths and hundredths. ● To read and write decimals to the thousandths place and represent the decimals with diagrams. ● To represent decimals to the thousandths place in expanded form. ● To explore the relationships between different ways of representing a decimal using the context of weights and a balance. ● To use place value understanding to compare decimals to the thousandths place. ● To represent decimals to the thousandths place on the number line and compare them. ● To examine situations where decimal quantities are rounded. ● To round to the nearest whole, tenth, and hundredth. ● To order decimals. ● To round and order decimals to the nearest one, tenth, and hundredth. ● To add decimals in a way that makes sense to them. ● To estimate and find the value of additional expressions with decimals. ● To add decimals and consider common errors in lining up place values when adding with the standard algorithm. ● To subtract decimals to the hundredths place in a way that makes sense to them. ● To estimate and find the value of subtraction expressions with decimals. ● To add and subtract decimals. ● To multiply a whole number by any amount of tenths or hundredths. ● To multiply a whole number and a decimal using their understanding of properties of operations and place value. ● To interpret and find the value of multiplication expressions with decimals and whole numbers.

	● To find products of tenths and tenths. ● To use place value understanding and multi-digit whole number products to find multi-digit decimal products. ● To notice and explain patterns when dividing a whole number by one tenth and one hundredth. ● To divide a whole number by a decimal less than 1 by reasoning about the number of groups of one tenth or one hundredth in one whole. ● To divide a decimal less than 1 by a whole number. ● To divide decimals greater than 1 by decimals less than 1. ● To apply their understanding of working with decimal numbers in a real-world context.
Skills	*Students will be able to:* ● Understanding the value of each digit in a decimal number. For example, knowing that in the number 0.256, the 2 represents two-tenths, the 5 represents five-hundredths, and the 6 represents six-thousandths. ● Using place value reasoning to add and subtract decimals. This includes lining up the decimal points and ensuring that digits with the same place value are added or subtracted. ● Connecting multiplication and division of decimals to whole number operations. Using familiar concepts like equal groups helps make sense of multiplying and dividing decimals. ● Developing strategies for multiplying and dividing decimals, including using diagrams and the relationship between multiplication and division
Performance Tasks	● Lesson 26- In this lesson, students build on their previous understanding and experiences with decimal numbers to plan a school book fair. They consider different categories of books to order and the sale price of the books. They estimate the number of people likely to attend the fair and approximate the amount of money the school can make from sales. ● iReady ((Student Individualized Path Work) ● Project-Based Learning Activities
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Pre-Assessment – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Problem of the Day/Warm Up – A quick daily question to review or reinforce concepts.

	● Guided Practice/Learning Activities/Launch – Teacher-monitored activities where students practice new skills with support. ● Check for Understanding/Lesson Synthesis – Informal questioning, thumbs-up/down, or whiteboard **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of Unit Test ● Quizzes- Each section provides practice problems that can be used for this type of assessment ● Performance Tasks – Real-world applications of math concepts that require problem-solving. ● Projects – A culminating project **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Math Journals – Students write about their math thinking and problem-solving strategies. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. ● Project-Based Learning (PBL) – Real-world application (See performance tasks)
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Learning Activities	● Warm up ● Instructional activities ● Lesson synthesis ● Cool Down

Interdisciplinary Connections	**Science & Decimal Comparisons** (NJ Science Standard 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.) • **Connection:** Students can research and compare data related to environmental conservation, such as rainfall amounts, pollution levels, or energy consumption, which are often recorded using decimals. They can apply **5.NBT.3** to read, write, and compare these decimal values and **5.NBT.4** to round them appropriately. For example, they can analyze water usage in different communities and discuss conservation efforts. **Social Studies & Economic Data** (NJ Social Studies Standard 6.1.5.EconEM.4: Explain why individuals and businesses specialize and trade.) • **Connection:** Students can explore global trade and currency exchange rates, which frequently involve decimals. By applying **5.NBT.3** and **5.NBT.4**, they can compare exchange rates, round to estimate costs, and analyze how decimals impact pricing and trade decisions between countries. **Financial Literacy & Decimal Operations** (NJ Social Studies Standard 9.1.5.PB.2: Describe choices consumers have with money and how those choices impact spending and saving.) • **Connection:** Students can apply **5.NBT.7** by creating and solving real-world budgeting problems, such as planning a shopping trip with a set amount of money, calculating total costs with taxes or discounts, and making change. They can also explore patterns in multiplying or dividing money by **powers of 10 (5.NBT.2)** when discussing inflation, interest rates, or financial growth.

Subject Area: Math **Grade Level: 5**	
Unit	**6 - More Decimal and Fraction Operations**
Timeframe	4 Weeks
Established Goals	• Students will solve multi-step problems involving measurement conversions, line plots, and fraction operations including addition and subtraction of fractions with unlike denominators. • Students will explain patterns when multiplying and dividing by powers of 10 and interpret multiplication as scaling, by comparing products with factors.
NJSLS	• MP.1 Make sense of problems and persevere in solving them. • MP.4 Model with mathematics. • MP.6 Attend to precision.

	● MP.7 Look for and make use of structure. ● MP.8 Look for and express regularity in repeated reasoning. ● 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 $\frac{1}{10}$ 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.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. ● 5.NF. A 2Solve 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. ● 5.NF. B4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. ● 5.NF. B5 Interpret multiplication as scaling (resizing), by: a. 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. b. 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 $\frac{a}{b}=\frac{(n\times a)}{(n\times b)}$ to the effect of multiplying $\frac{a}{b}$ by 1. • 5.MA.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. • 5.DLB. 5 Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). Use operations on fractions for this grade to solve problems involving information presented in line plots. • 5OA. A1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
Essential Questions	• How do digits shift when numbers are multiplied or divided by powers of 10? • How do you convert metric units? • How do you add fractions with unlike denominators? • How do you use line plots to interpret data? • How can you determine products of fractions using scaling?
Content Knowledge	*Students will learn:* • To observe place-value patterns when multiplying and dividing. • To recognize exponential notation for powers of 10 and to use exponential notation to represent large numbers. • To convert from a larger metric length unit to a smaller metric length unit. Students observe patterns when different numbers are multiplied by 10, by 100, or by 1,000. • To convert from a smaller metric length unit to a larger metric length unit, using a context of track and field. Students observe patterns when different numbers are divided by 10, by 100, or by 1,000. • To solve multi-step conversion problems about distance in metric units. • To solve conversion problems, using metric volume units. • To solve problems involving customary length units. • To add and subtract fractions with unlike denominators in ways that make sense to them.

	● To add and subtract fractions with unlike denominators by replacing the given expressions with equivalent expressions with common denominators. ● To explain why it is possible to find a common denominator of two given fractions by multiplying the denominators. ● To subtract fractions with unlike denominators, including mixed numbers. ● To solve problems that involve adding and subtracting fractions with unlike denominators. ● To consider different denominators they can use to add or subtract fractions. ● To make and interpret line plots displaying fractions in eighths. ● To make line plots and to solve problems, using the data. ● To compare the size of a product to the size of one factor, using a strategy that makes sense to them. ● To compare 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. ● To compare the size of a product to the size of one factor, based on the size of the other factor. ● Explain what happens when we multiply a fraction by a fraction greater than 1, less than 1, or equal to 1.
Skills	*Students will be able to:* ● Exponential Notation: Students learn to use exponents to represent powers of 10. ● Metric Unit Conversions: They convert between dierent metric units, applying their understanding of place value and operations with decimals. ● Finding Common Denominators: They explore strategies to find common denominators, enabling them to add and subtract fractions with unlike denominators. ● Interpreting Line Plots: Students analyze line plots displaying measurement data in fractional units, drawing conclusions and solving problems based on the data. ● Scaling with Multiplication: They compare products of fractions and whole numbers without calculating them, understanding how multiplication can represent scaling or resizing a quantity.
Performance Tasks	● Lesson 21- The purpose of this lesson is for students to apply their understanding of making line plots and using operations with fractions to analyze data.“Today, we also made and analyzed line plots.” “Who might be interested in collecting and analyzing data such as this? Why?” (Makers of children’s toys, stores, and advertisers want to know how kids spend their time so that they can make money or sell the things kids want. Parents and educators want to know how kids spend time to see if it is what

	they should be doing.) ● iReady (student individualized path work) ● Project-Based Learning Activities
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Pre-Assessment – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Problem of the Day/Warm Up – A quick daily question to review or reinforce concepts. ● Guided Practice/Learning Activities/Launch – Teacher-monitored activities where students practice new skills with support. ● Check for Understanding/Lesson Synthesis – Informal questioning, thumbs-up/down, or whiteboard **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of Unit Test ● Quizzes- Each section provides practice problems that can be used for this type of assessment ● Performance Tasks – Real-world applications of math concepts that require problem-solving. ● Projects – A culminating project **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Math Journals – Students write about their math thinking and problem-solving strategies. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. ● Project-Based Learning (PBL) – Real-world application (See performance tasks)
Resources/Materials	**Text:** ● **Text:** Illustrative Mathematics IMV. 360 Grade 5 Consumable Text ● **Text:** Teacher's Edition Illustrative Mathematics Grade 5 **Technologies** ● Students have 1:1 Chromebook access ● Online IMv. 360 Grade 5 student/teacher access to the digital platform ● iReady My Path for students ● Smart board ● Schoology learning management system ● Quizizz, Kahoot, Gimkit, 99 Math, Number, Blooket for gamification **Supplemental Materials**

	• Digital Black Line Master materials for homework and additional practice • Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) • Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Learning Activities	• Warm up • Instructional activities • Lesson synthesis • Cool Down
Interdisciplinary Connections	**Science & Metric Conversions** (NJ Science Standard 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.) • **Connection:** Students can conduct science experiments that involve measuring and converting metric units (e.g., grams to kilograms, milliliters to liters) while observing changes in matter. They will apply **5.MD.1** by converting units and **5.NBT.7** to perform addition and subtraction of decimals when calculating total mass or volume before and after a physical or chemical change. **Culinary Arts & Fraction Operations** (NJ Career Readiness, Life Literacies, and Key Skills Standard 9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and skills needed for a job.) • Connection: Students can explore culinary careers by using 5.NF.1 and 5.NF.2 to adjust recipes. They will add and subtract ingredient amounts with unlike denominators (e.g., combining ⅔ cup of sugar and ¾ cup of flour). Students can also estimate whether their ingredient amounts are reasonable using benchmark fractions.

Subject Area: Math Grade Level: 5	
Unit	**7 - Shapes on the Coordinate Plane**
Timeframe	4 Weeks
Established Goals	• Students will plot coordinate pairs on a coordinate grid and classify triangles and quadrilaterals in a hierarchy based on properties of side length and angle measure. • Students will generate, identify, and graph relationships between corresponding terms in two numeric patterns, given two rules, and represent and interpret real world and mathematical problems on a coordinate grid.
NJSLS	• MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning.5.DL.A.1 Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns. • 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.G.B Classify two-dimensional figures into categories based on their properties. 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.

	4. Classify two-dimensional figures in a hierarchy based on properties. ● 5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. ● 5.OA.B Analyze patterns and relationships ● 5.OA.B3 Generate two numerical patterns using two given rules. Identify apartment relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. ● 5.NF.B Apply and extend previous understandings of multiplication and division to multiply and divide fractions. ● 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.
Climate Change Mandate	**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. ● Climate Change Example: Students may represent real world problems about the reduced yields of staple crops by graphing points in the first quadrant of the coordinate plane; Students may interpret coordinate values of points in the agricultural context.
Essential Questions	● How can you pinpoint locations and describe shapes precisely on a grid? ● How can you classify shapes – this time focusing on the hierarchy of quadrilaterals and triangles? ● How can you explore numerical patterns, graph them on a coordinate grid, and use this to solve real-world problems?
Content Knowledge	*Students will learn:* ● To build familiarity with the structure of the coordinate grid. ● To locate and describe points on the coordinate grid. ● To plot points on the coordinate grid and recognize the importance of attending to precision when naming coordinates. ● To sort quadrilaterals and begin to notice the hierarchy and subcategories of quadrilaterals. ● To explore two different definitions of trapezoid. ● To continue to build the hierarchy of quadrilaterals. Students use categories and subcategories to see that if a shape is a square it is also a rhombus and also a parallelogram. ● To understand that a square is also a rectangle. ● To classify triangles using angle measures and side lengths. ● To generate patterns, given two rules, and identify relationships between corresponding terms in the different patterns.

	● To generate patterns based on two given rules and then identify and explain more complex relationships. ● To represent corresponding terms in two patterns on the coordinate grid. ● To represent situations by plotting and interpreting points on the coordinate grid. ● To examine rectangles with a given perimeter or area, and plot their length and width on the coordinate grid. ● To use what they've learned about coordinate grids to make a copy of a figure.
Skills	*Students will be able to:* ● Plotting points on a coordinate grid: Using coordinates to precisely locate points. ● Classifying shapes: Identifying key attributes to categorize shapes within a hierarchy. ● Analyzing numerical patterns: Identifying relationships between pairs of numbers generated by following rules. ● Graphing numerical patterns: Representing patterns on a coordinate grid to understand their behavior. ● Problem-solving: Using coordinate grids and numerical patterns to solve real-world problems.
Performance Tasks	● Lesson 14- Students use coordinate grids to make a copy of a figure. ○ "What choices did you make as you planned the copy of your figure? How did the changes affect the copy?" (I decided to use centimeters to make the grid over my figure. This made the copy and the original the same size. I chose to use decimals for my points so I could get the points to be as exact as possible, which made my copy look a lot like the original.) ● iReady (Students Individualized Path Work) ● Project-Based Learning Activities
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Pre-Assessment – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Problem of the Day/Warm Up – A quick daily question to review or reinforce concepts. ● Guided Practice/Learning Activities/Launch – Teacher-monitored activities where students practice new skills with support. ● Check for Understanding/Lesson Synthesis – Informal questioning, thumbs-up/down, or whiteboard **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of Unit Test

	• Quizzes- Each section provides practice problems that can be used for this type of assessment • Performance Tasks – Real-world applications of math concepts that require problem-solving. • Projects – A culminating project **Alternative Assessment** (Non-traditional ways of assessing understanding) • Leveled Independent Practice/Classwork – Differentiated work based on student ability. • Homework – Provides additional practice but is not always a direct measure of understanding. • Math Journals – Students write about their math thinking and problem-solving strategies. • Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. • Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. • Project-Based Learning (PBL) – Real-world application (See performance tasks)
Resources/Materials	**Text:** • **Text:** Illustrative Mathematics IMV. 360 Grade 5 Consumable Text • **Text:** Teacher's Edition Illustrative Mathematics Grade 5 **Technologies** • Students have 1:1 Chromebook access • Online IMv. 360 Grade 5 student/teacher access to the digital platform • iReady My Path for students • Smart board • Schoology learning management system • Quizizz, Kahoot, Gimkit, 99 Math, Number, Blooket for gamification **Supplemental Materials** • Digital Black Line Master materials for homework and additional practice • Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) • Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Learning Activities	• Warm up • Instructional activities • Lesson synthesis • Cool Down
Interdisciplinary Connections	**Science & Data Literacy** (NJ Science Standard 5-PS1-4: Conduct an investigation to determine whether the mixing of two or more substances results in new substances) • **Connection:** Students can conduct a science experiment mixing different substances and collect quantitative data on changes in mass, volume, or temperature. They will then **organize and represent** their findings using **double bar graphs or line plots** (5.DL.A.2, 5.DL.B.5). By graphing and analyzing

	their data, they can identify patterns and communicate results digitally. **Social Studies & Coordinate Geometry** (NJ Social Studies Standard 6.1.5.Geo.2: Use maps to explain relationships between locations of places and regions) ● **Connection:** Students can analyze historical or current events by plotting locations on a **coordinate plane** (5.G.A.1, 5.G.A.2). They can use ordered pairs to map significant landmarks, migration routes, or key trade centers, interpreting real-world data spatially.
Diversity, Equity and Inclusion	Sample Activties Grades 3-5 **The Rich Tapestry of Religion in the United States** ● The three lesson unit helps students assess the religious diversity of the United States, explore different religious and non-religious worldviews, and consider how freedom of religion relates to their own lives and the lives of others. ● **Data Analysis and Interpretation - NJSLS.MATH.5.MD.B.2** ○ Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots.

Subject Area: Math Grade Level: 5	
Unit	**8 - Putting It All Together**
Timeframe	3 Weeks
Established Goals	● Students will consolidate and solidify their understanding of various concepts and skills related to major work of the grade. ● Students will continue to work towards fluency of grade level concepts.
NJSLS	● MP.1 Make sense of problems and persevere in solving them. ● MP.2 Reason abstractly and quantitatively. ● MP.3 Construct viable arguments & critique the reasoning of others. ● MP.4 Model with mathematics. ● MP.6 Attend to precision. ● MP.7 Look for and make use of structure. ● 5.NBT. B 5 With accuracy and efficiency, multiply multi-digit whole numbers using the standard

	algorithm. • 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.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. • 5. NF. A1 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. • 5 NF. B 3. Interpret a fraction as division of the numerator by the denominator (i.e., $\frac{a}{b} = a \div b$). 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. • 5 NF. B 4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. • 5. G. B 3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. • 5. G. B. 4. Classify two-dimensional figures in a hierarchy based on properties. • 5.M.B.2 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. • 5.M.B.4 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
Essential Questions	• How do you use the standard algorithm to multiply multi-digit numbers? • How do you divide multi-digit numbers by 2 digit divisors? • How do you solve real-world problems using fractional measurements? • How do you estimate and calculate volume?
Content Knowledge	*Students will learn:*

	● To recognize and explain place-value patterns as they find products using the standard algorithm they learned in Unit 4. ● To practice using the standard algorithm to multiply multi-digit numbers. ● To reason about how the factors in a problem can influence the strategy they use to find the product, in particular identifying cases where the standard algorithm would be useful. ● To estimate and find whole-number quotients with up to four-digit dividends and two-digit divisors. ● To 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 the relationship between multiplication and division. ● To solve real-world problems about volume. ● To solve problems involving volume. Students multiply and divide multi-digit whole numbers using the algorithms learned in the previous sections. ● To solve problems involving volume. Students multiply and divide multi-digit whole numbers using the algorithms learned in the previous sections. ● To solve real-world problems about volume. ● To practice adding fractions with unlike denominators. ● To practice subtracting fractions with unlike denominators. ● To practice adding decimals. ● To practice multiplying fractions. ● To apply their understanding of fractions as division to create a Notice and Wonder activity. ● To apply their understanding of multi-digit multiplication and the standard algorithm of multiplication to create an Estimation Exploration activity. ● To apply their understanding of dividing multi-digit whole numbers to create a Number Talk activity. ● To apply their understanding of adding and subtracting fractions with unlike denominators to create a True or False? activity. ● To apply their understanding of volume to create a Which Three Go Together? activity.
Skills	*Students will be able to:* ● Fluently multiplying multi-digit whole numbers using the standard algorithm. ● Dividing multi-digit whole numbers using place-value strategies and partial quotients.

	● Estimating and calculating the volume of rectangular prisms, considering unit conversions. ● Adding, subtracting, and multiplying fractions, focusing on strategic choices of numerators and denominators. ● Adding decimals and making strategic choices to reach specific decimal values
Performance Tasks	● Lesson 15- The purpose of this lesson is for students to apply their understanding of multi-digit multiplication and the standard algorithm of multiplication to create an Estimation Exploration activity. "What were the most important things that you had to consider as you created your Estimation Exploration? Why were these things important?" (I needed to find things that were organized so that it was possible to make some estimates. There needed to be many of the items or objects, so it wasn't possible to just count them. But if there were too many, then making an estimate was really hard.) ● iReady (student individualized path work) ● Project-Based Learning Activities
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Pre-Assessment – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Problem of the Day/Warm Up – A quick daily question to review or reinforce concepts. ● Guided Practice/Learning Activities/Launch – Teacher-monitored activities where students practice new skills with support. ● Check for Understanding/Lesson Synthesis – Informal questioning, thumbs-up/down, or whiteboard **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● End of Unit Test ● Quizzes- Each section provides practice problems that can be used for this type of assessment ● Performance Tasks – Real-world applications of math concepts that require problem-solving. ● Projects – A culminating project **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Math Journals – Students write about their math thinking and problem-solving strategies. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. ● Project-Based Learning (PBL) – Real-world application (See performance tasks)

Resources/Materials	**Text:** ● **Text:** Illustrative Mathematics IMV. 360 Grade 5 Consumable Text ● **Text:** Teacher's Edition Illustrative Mathematics Grade 5 **Technologies** ● Students have 1:1 Chromebook access ● Online IMv. 360 Grade 5 student/teacher access to the digital platform ● iReady My Path for students ● Smart board ● Schoology learning management system ● Quizizz, Kahoot, Gimkit, 99 Math, Number, Blooket for gamification **Supplemental Materials** ● Digital Black Line Master materials for homework and additional practice ● Learning Stations (Created by the teacher using teacher created materials and manipulatives) ● Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) ● Project-Based Learning Activities (created by the teacher) ● Spiral review activities (created by the teacher)
Learning Activities	● Warm up ● Instructional activities ● Lesson synthesis ● Cool Down
Interdisciplinary Connections	**Interdisciplinary Connections for 5.G.3 & 5.G.4** Connection to Science (NGSS 5-PS1-3: Matter and Its Interactions) ● In science, students classify materials based on their properties, such as hardness, flexibility, or reflectivity. Similarly, in math, they classify shapes based on properties like angles and sides. A lesson could involve sorting different materials and then drawing connections to how shapes are classified in a hierarchy. Interdisciplinary Connection (Math & Visual Arts – New Jersey Standards) ● Students can explore how two-dimensional geometric classifications apply to real-world artistic designs. Using **New Jersey Visual and Performing Arts Standard 1.5.5.Cr1a**, which encourages students to "brainstorm and collaborate on multiple approaches to a creative art or design problem," they can create artwork that incorporates and classifies geometric shapes in a hierarchy. For example, they can analyze

	and replicate patterns found in quilting, mosaics, or stained glass, identifying how different polygons fit into broader categories.

Subject Area: Math **Grade Level: 5**	
Unit	**9 - Ratio**
Timeframe	2 Weeks
Established Goals	• MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.4 Model with mathematics. • MP.6 Attend to precision. • MP.7 Look for and make use of structure. • MP.8 Look for and express regularity in repeated reasoning.
NJSLS	• * not listed in chapter *
Essential Questions	• How can you relate and compare two or three quantities? • What about three quantities?
Content Knowledge	*Students will learn:* • Finding Ratio • Equivalent Ratios • Comparing Three Quantities
Skills	*Students will be able to:* • Review related concepts from previous chapters or grades. • Read and write ratios. • Find equivalent ratios using multiplication or division. • Solve ratio problems using multiplication or division. • Read and write ratios of three quantities.

	• Solve real-world problems involving • ratio. • Draw a diagram • Make a list
Performance Tasks	• What do we know about the problem? What are we asked to do? How can we draw a diagram to help us find the answer? • What information do we need? How can we use the ratio to help us find the answer? Which strategy should we use to solve the problem? • What do we know about the problem? What are we asked to find? How can we draw a bar model to show the information? Which strategy should we use? • How is this problem similar to the other problems we solved in this chapter? How can we relate the fraction to the ratio? Which type of bar model should we draw to help us solve the problem? • Project-Based Learning Activities
Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) • Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady • Pre-Assessment – Given before a unit or topic to gauge prior knowledge. • NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) • Problem of the Day – A quick daily question to review or reinforce concepts. • Guided Practice – Teacher-monitored activities where students practice new skills with support. • Check for Understanding – Informal questioning, thumbs-up/down, or whiteboard responses to gauge comprehension. • Exit Ticket – A short problem or question at the end of a lesson to assess learning. • Class Discussions – Encouraging students to explain their thinking and reasoning aloud. ○ About ratio **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) • Unit 9 Test • quizzes: Finding Ratio • Performance Tasks – Real-world applications of math concepts that require problem-solving. • Projects – A culminating project, such as designing a budget or measuring an area for a classroom redesign. **Alternative Assessment** (Non-traditional ways of assessing understanding) • Leveled Independent Practice/Classwork – Differentiated work based on student ability. • Homework – Provides additional practice but is not always a direct measure of understanding. • Math Journals – Students write about their math thinking and problem-solving strategies. • Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation.

	• Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. • Project-Based Learning (PBL) – Real-world applications, such as designing a theme park with scaled measurements, focusing on ratio
Resources/Materials	**Text:** • **Text:** Illustrative Mathematics IMV. 360 Grade 6 Consumable Text (Unit 2- paper copies provided) • **Text:** Teacher's Edition Illustrative Mathematics Grade 6 (Unit 2) **Technologies** • Students have 1:1 Chromebook access • Online IMv. 360 Grade 6 student/teacher access to the digital platform • iReady Path for students • Smartboard • Schoology learning management system • Quizizz, Kahoot, Gimkit, 99 Math, Number, Blooket for gamification **Supplemental Materials** • Digital Black Line Master materials for homework and additional practice • Learning Stations (Created by the teacher using teacher created materials and manipulatives) • Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) • Project-Based Learning Activities (created by the teacher) • Spiral review activities (created by the teacher)
Learning Activities	• Warm up • Instructional activities • Lesson synthesis • Cool Down

Subject Area: Math **Grade Level: 5**	
Unit	**10 - Percent**
Timeframe	2 Weeks
Established Goals	• MP.1 Make sense of problems and persevere in solving them. • MP.2 Reason abstractly and quantitatively. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically.

	• MP.7 Look for and make use of structure.
NJSLS	• * not listed in chapter *
Essential Questions	• Where do you see percents in real life? • What is the whole percent? • What other ways can you represent part of a whole? • What does percent mean? • How can a percent be represented in different ways? • How can percentages be used in real-world situations?
Content Knowledge	*Students will learn:* • Percent • Fractions, Decimals, and Percents • Percent of a Quantity • Real-World Problems
Skills	*Students will be able to:* • Review related concepts from previous chapters or grades. • Relate a percent to parts of a whole where the whole is made up of 100 equal parts. • Relate and compare percentages, decimals, and fractions. • Express fractions as percentages and vice versa. • Express decimals as percentages and vice versa. • Find the value of a percent of a quantity, given the amount and the percent. • Solve real-world problems involving percents. • Draw a diagram • Solve part of the problem • Reinforce and consolidate chapter skills and concepts.
Performance Tasks	• What do we know about the problem? What do we need to find? What strategies can we use to solve the problem? • What information are we given? What do we have to do? How can we write the number sentence? • What do we know about the problem? What are we asked to find? Which operations should we use? • Project-Based Learning Activities

Other Assessment Evidence	**Benchmark Assessment** (Measures progress toward grade-level standards at specific points in the year) ● Beginning, Mid-Year and End-of-Year Benchmark Assessment- iReady ● Pre-Assessment – Given before a unit or topic to gauge prior knowledge. ● NJSLA Question Examination – Reviewing state test-style questions to assess readiness for standardized testing. **Formative Assessment** (Ongoing assessments used to guide instruction and provide feedback) ● Problem of the Day – A quick daily question to review or reinforce concepts. ● Guided Practice – Teacher-monitored activities where students practice new skills with support. ● Check for Understanding – Informal questioning, thumbs-up/down, or whiteboard responses to gauge comprehension. ● Exit Ticket – A short problem or question at the end of a lesson to assess learning. ● Class Discussions – Encouraging students to explain their thinking and reasoning aloud. ○ About Fractions, Decimals, and Percents **Summative Assessment** (Evaluates mastery of skills at the end of a unit or grading period) ● Unit 10 Test ● quizzes: Fractions, Decimals, and Percents ● Performance Tasks – Real-world applications of math concepts that require problem-solving. ● Projects – A culminating project, such as designing a budget or measuring an area for a classroom redesign. **Alternative Assessment** (Non-traditional ways of assessing understanding) ● Leveled Independent Practice/Classwork – Differentiated work based on student ability. ● Homework – Provides additional practice but is not always a direct measure of understanding. ● Math Journals – Students write about their math thinking and problem-solving strategies. ● Peer or Self-Assessment – Students reflect on their work or assess a peer's explanation. ● Math Games & Puzzles – Hands-on, engaging ways to demonstrate understanding. ● Project-Based Learning (PBL) – Real-world applications, such as designing a theme park with scaled measurements, focusing on Fractions, Decimals, and Percents
Resources/Materials	**Text:** ● **Text:** Illustrative Mathematics IMV. 360 Grade 6 Consumable Text (paper copies provided- Unit 3) ● **Text:** Teacher's Edition Illustrative Mathematics Grade 6 (Unit 3) **Technologies** ● Students have 1:1 Chromebook access ● Online IMv. 360 Grade 6 student/teacher access to the digital platform ● iReady Path for students ● Smartboard ● Schoology learning management system ● Quizizz, Kahoot, Gimkit, 99 Math, Number, Blooket for gamification

	Supplemental Materials ● Digital Black Line Master materials for homework and additional practice ● Learning Stations (Created by the teacher using teacher created materials and manipulatives) ● Checks for understanding (problems from the textbook, Google Forms, teacher-created materials) ● Project-Based Learning Activities (created by the teacher) ● Spiral review activities (created by the teacher)
Learning Activities	● Warm up ● Instructional activities ● Lesson synthesis ● Cool Down

Additional Information:

21st Century Skills Integration: Career Readiness, Life Literacies, and Key Skills	***By the end of fifth grade:*** **Civic Financial Responsibility** **Core Idea:** You can give back in areas that matter to you. ● 9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors. **Credit Profile** **Core Idea:** There are benefits to having a positive credit history. ● 9.1.5.CP.1: Identify the advantages of maintaining a positive credit history. **Economic and Government Influences** **Core Idea:** Taxes are collected on a variety of goods and services at the local, state, and federal levels. ● 9.1.5.EG.1: Explain and give examples of what is meant by the term "tax." ● 9.1.5.EG.2: Describe how tax monies are spent. **Core Idea:** There is a broader economic system that influences your financial goals. ● 9.1.5.EG.3: Explain the impact of the economic system on one's personal financial goals. ● 9.1.5. EG.4: Describe how an individual's financial decisions affect society and contribute to the overall economy. **Core Idea:** There are agencies, laws, and resources to protect individuals as consumers. ● 9.1.5. EG.5: Identify sources of consumer protection and assistance.

Financial Institutions

Core Idea: People can choose to save money in many places such as home in a piggy bank, bank, or credit union.

- 9.1.5.FI.1: Identify various types of financial institutions and the services they offer including banks, credit unions, and credit card companies.

Financial Psychology

Core Idea: An individual's financial traits and habits affect his/her finances.

- 9.1.5.FP.1: Illustrate the impact of financial traits on financial decisions.
- 9.1.5.FP.2: Identify the elements of being a good steward of money.

Core Idea: Spending choices and their intended and unintended consequences impact financial outcomes and personal wellbeing.

- 9.1.5.FP.3: Analyze how spending choices and decision-making can result in positive or negative consequences.
- 9.1.5.FP.4: Explain the role of spending money and how it affects wellbeing and happiness (e.g., "happy money," experiences over things, donating to causes, anticipation, etc.).

Core Idea: Not all financial information is accurate or truthful.

- 9.1.5.FP.5: Illustrate how inaccurate information is disseminated through various external influencers including the media, advertisers/marketers, friends, educators, and family members.

Planning and Budgeting

Core Idea: There are specific steps associated with creating a budget.

- 9.1.5.PB.1: Develop a personal budget and explain how it reflects spending, saving, and charitable contributions.

Core Idea: Saving money can impact an individual's ability to address emergencies and accomplish their short-and long-term goals.

- 9.1.5.PB.2: Describe choices consumers have with money (e.g., save, spend, donate).

Risk Management and Insurance

Core Idea: Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

- 9.1.5.RMI.1: Identify risks that individuals and households face.
- 9.1.5.RMI.2: Justify reasons to have insurance.

Career Awareness and Planning

Core Idea: An individual's passions, aptitude and skills can affect his/her employment and earning potential.

- 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
- 9.2.5.CAP.2: Identify how you might like to earn an income.
- 9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

- 9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.

Core Idea: Income and benefits can vary depending on the employer and type of job or career.

- 9.2.5.CAP.5: Identify various employee benefits, including income, medical, vacation time, and lifestyle benefits provided by different types of jobs and careers.

Core Idea: There are a variety of factors to consider before starting a business.

- 9.2.5.CAP.6: Compare the characteristics of a successful entrepreneur with the traits of successful employees.
- 9.2.5.CAP.7: Identify factors to consider before starting a business.

Core Idea: Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

- 9.2.5.CAP.8: Identify risks that individuals and households face.
- 9.2.5.CAP.9: Justify reasons to have insurance.

Creativity and Innovation

Core Idea: Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.

- 9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3,7.1.NM.IPERS.6).
- 9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).

Core Idea: Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.

- 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
- 9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6).

Critical Thinking and Problem-solving

Core Idea: The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.

- 9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
- 9.4.5.CT.2: Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem (e.g., 2.1.5.CHSS.1, 4-ESS3-1).
- 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.
- 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).

Digital Citizenship

Core Idea: Intellectual property rights exist to protect the original works of individuals. It is allowable to use other people's ide9.4.5.DC.1: Explain the need for and use of copyrights.

- 9.4.5.DC.2: Provide attribution according to intellectual property rights guidelines using public domain or creative commons media.
- 9.4.5.DC.3: Distinguish between digital images that can be reused freely and those that have copyright restrictions as in one's own work provided that proper credit is given to the original source.

Core Idea: Sending and receiving copies of media on the internet creates the opportunity for unauthorized use of data, such as personally owned video, photos, and music.

- 9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology (e.g.,8.1.5.NI.2).

Core Idea: Digital identities must be managed in order to create a positive digital footprint.

- 9.4.5.DC.5: Identify the characteristics of a positive and negative online identity and the lasting implications of online activity.

Core Idea: Digital tools have positively and negatively changed the way people interact socially.

- 9.4.5.DC.6: Compare and contrast how digital tools have changed social interactions (e.g., 8.1.5.IC.1).
- 9.4.5.DC.7: Explain how posting and commenting in social spaces can have positive or negative consequences.

Core Idea: Digital engagement can improve the planning and delivery of climate change actions.

- 9.4.5.DC.8: Propose ways local and global communities can engage digitally to participate in and promote climate action (e.g., 6.3.5.GeoHE.1).

Global and Cultural Awareness

Core Idea: Culture and geography can shape an individual's experiences and perspectives.

- 9.4.5.GCA.1: Analyze how culture shapes individual and community perspectives and points of view (e.g., 1.1.5.C2a, RL.5.9, 6.1.5.HistoryCC.8).

Information and Media Literacy

Core Idea: Digital tools and media resources provide access to vast stores of information, but the information can be biased or inaccurate.

	• 9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance (e.g., Social Studies Practice - Gathering and Evaluating Sources). **Core Idea:** Digital tools can be used to modify and display data in various ways that can be organized to communicate ideas. • 9.4.5.IML.2: Create a visual representation to organize information about a problem or issue (e.g., 4.MD.B.4, 8.1.5.DA.3). • 9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data. **Core Idea:** Accurate and comprehensive information comes in a variety of platforms and formats and is the basis for effective decision-making. • 9.4.5.IML.4: Determine the impact of implicit and explicit media messages on individuals, groups, and society as a whole. • 9.4.5.IML.5: Distinguish how media are used by individuals, groups, and organizations for varying purposes. (e.g., 1.3A.5.R1a). **Core Idea:** Specific situations require the use of relevant sources of information. • 9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions (e.g., RI.5.7, 6.1.5.HistoryCC.7, 7.1.NM. IPRET.5). • 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social (e.g., 2.2.5. PF.5). **<u>Technology Literacy</u>** **Core Idea:** Different digital tools have different purposes. • 9.4.5.TL.1: Compare the common uses of at least two different digital tools and identify the advantages and disadvantages of using each. • 9.4.5.TL.2: Sort and filter data in a spreadsheet to analyze findings. • 9.4.5.TL.3: Format a document using a word processing application to enhance text, change page formatting, and include appropriate images graphics, or symbols. **Core Idea:** Collaborating digitally as a team can often develop a better artifact than an individual working alone. • 9.4.5.TL.4: Compare and contrast artifacts produced individually to those developed collaboratively (e.g., 1.5.5.CR3a). • 9.4.5.TL.5: Collaborate digitally to produce an artifact (e.g., 1.2.5CR1d).
Career Education	**Whole Numbers and the Four Operations / Four Operations of Decimals** • **Career: Accountant / Financial Analyst** – Uses addition, subtraction, multiplication, and division of whole numbers and decimals to manage budgets, analyze expenses, and prepare financial reports.

	• **Career: Cashier / Retail Manager** – Works with whole numbers and decimals when handling money, calculating discounts, and making change. **Fractions and Mixed Numbers / Multiplying and Dividing Fractions and Mixed Numbers** • **Career: Chef / Baker** – Uses fractions and mixed numbers to measure ingredients, adjust recipe sizes, and convert measurements. • **Career: Construction Worker / Carpenter** – Applies fractions to measure and cut materials accurately, ensuring precise building and fitting. **Decimals** • **Career: Pharmacist / Pharmacy Technician** – Uses decimals to measure and dispense correct dosages of medication. • **Career: Engineer (Mechanical, Electrical, Civil)** – Uses decimals in calculations for measurements, tolerances, and designing machinery or structures. **Volume** • **Career: Architect** – Calculates the volume of buildings and rooms to ensure proper space utilization and material estimates. • **Career: Aquatic Scientist / Marine Biologist** – Uses volume calculations when measuring water capacity in tanks or studying ecosystems. **Line Plots and the Coordinate Plane** • **Career: Data Analyst / Statistician** – Creates and interprets line plots and graphs to analyze trends and patterns. • **Career: Urban Planner** – Uses the coordinate plane to map city layouts and design infrastructure. **Polygons** • **Career: Graphic Designer / Video Game Designer** – Uses polygons to create digital graphics, animations, and 3D models. • **Career: Surveyor / Cartographer** – Works with polygons to measure land and create maps.
Use of Technology	• All students are one-to-one with Chromebooks for day-to-day use in the classroom • A variety of math websites are used daily to engage and track student progress (iReady, 99math, Reflex, Prodigy, Sumdog, Freckle, Blooket, and IM v 360 online textbook) • Schoology is used to upload assignments, post links, administer assessments, post daily agendas, discussions, and a messaging tool. • All classrooms have access to an interactive Smart Board with speaker system so lessons can include video,

	sound, and interactive lessons for all learners.
Technology Integration - Computer Science and Design Thinking	**8.1 Computer Science by the End of Grade 5** **<u>Computing Systems</u>** **Core Idea:** Computing devices may be connected to other devices to form a system as a way to extend their capabilities. ● 8.1.5.CS.1: Model how computing devices connect to other components to form a system. **Core Idea:** Software and hardware work together as a system to accomplish tasks (e.g., sending, receiving, processing, and storing units of information). ● 8.1.5.CS.2: Model how computer software and hardware work together as a system to accomplish tasks. **Core Idea:** Shared features allow for common troubleshooting strategies that can be effective for many systems. ● 8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies. **<u>Networks and the Internet</u>** **Core Idea:** Information needs a physical or wireless path to travel to be sent and received. ● 8.1.5.NI.1: Develop models that successfully transmit and receive information using both wired and wireless methods. **Core Idea:** Distinguishing between public and private information is important for safe and secure online interactions. Information can be protected using various security measures (i.e., physical and digital). ● 8.1.5.NI.2: Describe physical and digital security measures for protecting sensitive personal information. **Impacts of Computing** **Core Idea:** The development and modification of computing technology is driven by individual's needs and wants and can affect individuals differently. ● 8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes. ● 8.1.5.IC.2: Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users. **Data & Analysis** **Core Idea:** Data can be organized, displayed, and presented to highlight relationships. ● 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim. **Core Idea:** The type of data being stored affects the storage requirements. ● 8.1.5.DA.2: Compare the amount of storage space required for different types of data. **Core Idea:** Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data. ● 8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data. ● 8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim. **Core Idea:** Many factors influence the accuracy of inferences and predictions. ● 8.1.5.DA.5: Propose cause and effect relationships, predict outcomes, or communicate ideas using data. **<u>Algorithms & Programming</u>** **Core Idea:** Different algorithms can achieve the same result. Some algorithms are more appropriate for a

specific use than others.

- 8.1.5.AP.1: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

Core Idea: Programming languages provide variables, which are used to store and modify data.

- 8.1.5.AP.2: Create programs that use clearly named variables to store and modify data.

Core Idea: A variety of control structures are used to change the flow of program execution (e.g., sequences, events, loops, conditionals).

- 8.1.5.AP.3: Create programs that include sequences, events, loops, and conditionals.

Core Idea: Programs can be broken down into smaller parts to facilitate their design, implementation, and review. Programs can also be created by incorporating smaller portions of programs that already exist.

- 8.1.5.AP.4: Break down problems into smaller, manageable sub-problems to facilitate program development.
- 8.1.5.AP.5: Modify, remix, or incorporate pieces of existing programs into one's own work to add additional features or create a new program.

Core Idea: Individuals develop programs using an iterative process involving design, implementation, testing, and review.

- 8.1.5.AP.6: Develop programs using an iterative process, implement the program design, and test the program to ensure it works as intended.

8.2 Design Thinking by the End of Grade 5

Engineering Design

Core Idea: Engineering design is a systematic and creative process of communicating and collaborating to meet a design challenge. Often, several design solutions exist, each better in some way than the others.

- 8.2.5.ED.1: Explain the functions of a system and its subsystems.
- 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
- 8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Core Idea: Engineering design requirements include desired features and limitations that need to be considered.

- 8.2.5.ED.4: Explain factors that influence the development and function of products and systems (e.g., resources, criteria, desired features, constraints).
- 8.2.5.ED.5: Describe how specifications and limitations impact the engineering design process.
- 8.2.5.ED.6: Evaluate and test alternative solutions to a problem using the constraints and trade- offs identified in the design process.

Interaction of Technology and Humans

Core Idea: Societal needs and wants determine which new tools are developed to address real-world problems.

- 8.2.5.ITH.1: Explain how societal needs and wants influence the development and function of a product and a system.

Core Idea: A new tool may have favorable or unfavorable results as well as both positive and negative effects on society. Technology spurs new businesses and careers.

- 8.2.5.ITH.2: Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might

	have. ● 8.2.5.ITH.3: Analyze the effectiveness of a new product or system and identify the positive and/or negative consequences resulting from its use. ● 8.2.5.ITH.4: Describe a technology/tool that has made the way people live easier or has led to a new business or career. **Nature of Technology** **Core Idea:** Technology innovation and improvement may be influenced by a variety of factors. Engineers create and modify technologies to meet people's needs and wants; scientists ask questions about the natural world. ● 8.2.5.NT.1: Troubleshoot a product that has stopped working and brainstorm ideas to correct the problem. ● 8.2.5.NT.2: Identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries, and societies. ● 8.2.5.NT.3: Redesign an existing product for a different purpose in a collaborative team. ● 8.2.5.NT.4: Identify how improvement in the understanding of materials science impacts technologies. **Effects of Technology on the Natural World** **Core Idea:** The technology developed for the human designed world can have unintended consequences for the environment. Technology must be continually developed and made more efficient to reduce the need for non-renewable resources. ● 8.2.5.ETW.1: Describe how resources such as material, energy, information, time, tools, people, and capital are used in products or systems. ● 8.2.5.ETW.2: Describe ways that various technologies are used to reduce improper use of resources. ● 8.2.5.ETW.3: Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved. ● 8.2.5.ETW.4: Explain the impact that resources, such as energy and materials used to develop technology, have on the environment. ● 8.2.5.ETW.5: Identify the impact of a specific technology on the environment and determine what can be done to increase positive effects and to reduce any negative effects, such as climate change. **Ethics & Culture** **Core Idea:** Technological choices and opportunities vary due to factors such as differences in economic resources, location, and cultural values. ● 8.2.5.EC.1: Analyze how technology has contributed to or reduced inequities in local and global communities and determine its short- and long-term effects.
Accommodations for: Special Education & 504	● Special Education modifications will be implemented as per the Individualized Education Programs of the students in the class. ● 5th Grade: Math Differentiation and Modifications List for IEP and 504's ● Please click here for an overview of the variety of accommodations set in place for IEP's and 504's. ● Accommodations will be dictated by the general makeup of the class.
English Language Learners	● Coordinate activities with ESL teacher to accommodate individual learning needs ● Provide appropriate leveled texts ● Students complete the ACCESS 2.0 test yearly to measure growth and guide instruction

	Accommodations (Support without changing learning expectations) 1. Use Visual Aids & Manipulatives – Provide number lines, fraction strips, place value charts, and math manipulatives to help with comprehension. 2. Provide Sentence Stems & Word Banks – Offer structured sentence starters for explanations (e.g., "The answer is ___ because...") and key vocabulary lists with definitions and pictures. 3. Allow Extra Processing Time – Give students additional time to read problems, think about their answers, and respond. 4. Use Bilingual or Picture-Based Resources – Provide translated word problems, bilingual dictionaries, or pictorial representations to support understanding. 5. Pair with a Peer or Small Group Work – Assign ELLs a partner or group where they can discuss problems and hear math vocabulary in context. **Modifications** (Adjustments to learning expectations) 1. Simplify Word Problems – Reduce complex language, break problems into smaller steps, and highlight keywords. 2. Reduce Number of Problems – Assign fewer, high-quality problems that focus on essential skills rather than a full worksheet. 3. Provide Alternative Assessments – Allow students to show understanding through drawings, hands-on activities, or verbal explanations instead of written responses. 4. Focus on Key Math Concepts – Emphasize foundational skills rather than complex multi-step problems until language proficiency improves. 5. Use Visual Instructions Instead of Text-Heavy Directions – Replace long written instructions with step-by-step diagrams, examples, or videos.
MTS/RTI Alignment	The VTSD Response to Intervention and MTSS Manual and the NJTSS Early Reading Screening Guidelines outline the policies and procedures that 'exist to ensure a coordinated system for planning, delivering, measurement, and modification of intervention and referral services implemented in each school by a multidisciplinary team to address the learning, behavioral, and health needs of all students. (N.J.A.C. 6A:16-8)' This requirement is fulfilled through the district New Jersey Tiered System of Support (NJTSS) Early Reading grant initiative and our Multi-Tiered Systems of Support (MTSS) Response to Intervention plan which includes A. A continuum of supports and interventions available in each school to support learning, behavior, and health needs; B. Action plans for interventions based on student data and desired outcomes; C. Professional development for multidisciplinary teams and staff who provide interventions; and D. Review and assessment of effectiveness of interventions (e.g., progress monitoring).

Risk for School-Failure	• Math Learning Lab • Counseling interventions • Parent meetings • Student meetings • Individual and Group counseling **Accommodations** (Support without changing learning expectations) 1. Chunk Assignments into Smaller Tasks – Break down multi-step problems into manageable parts to reduce overwhelm. 2. Provide Frequent Checks for Understanding – Use quick verbal or written check-ins to ensure comprehension before moving on. 3. Offer Extended Time on Assignments & Tests – Allow extra time to process and complete work to reduce pressure. 4. Use Graphic Organizers & Step-by-Step Guides – Provide tools like place value charts, multiplication grids, or problem-solving templates. 5. Incorporate Hands-On Learning & Real-World Connections – Use math games, manipulatives, and real-life examples to make concepts concrete. **Modifications** (Adjustments to learning expectations) 1. Simplify Word Problems – Reduce the complexity of language and remove extraneous information to focus on key math concepts. 2. Adjust the Number of Problems Assigned – Reduce the workload by assigning fewer, but more targeted, problems for practice. 3. Allow Alternative Assessments – Let students demonstrate understanding through drawings, verbal explanations, or hands-on activities instead of traditional tests. 4. Emphasize Mastery of Core Skills – Focus on foundational concepts and basic computation before introducing more complex topics. 5. Provide Scaffolded Supports for Problem-Solving – Use partially completed examples or step-by-step guides to help students work through problems independently.
Gifted and Talented Learners	• Inclusive Identification process that depicts the child as a whole in order to provide the best learning environment possible for each student. Click here for Identification Profile Sample • Tiered Services utilizing NAGC K-12 Programming standards to ensure individual needs are being met. Click here for services map. • Formative Assessment is utilized in order to promote acceleration, curriculum compacting, grouping, and asynchronous learning where appropriate. • Dynamic Model for Gifted Program Improvement is utilized in order to verify that our program is employing not only up-to-date methods, but also effective ones.

	● Teacher training in Gifted Education. **Accommodations (Support without changing learning expectations)** 1. Compact the Curriculum – Allow students to test out of concepts they've already mastered and move on to more challenging material. 2. Provide Enrichment Opportunities – Offer advanced problem-solving tasks, logic puzzles, and real-world math applications. 3. Allow Independent or Self-Paced Learning – Give students access to accelerated content or self-guided projects. 4. Encourage Peer Teaching & Leadership Roles – Let students explain concepts to peers, lead group discussions, or create their own math problems. 5. Integrate Technology & Online Resources – Use online math programs, coding activities, or simulations to deepen understanding. **Modifications (Adjustments to learning expectations)** 1. Use Open-Ended & Higher-Order Thinking Problems – Challenge students with complex, multi-step problems that require critical thinking. 2. Introduce Above-Grade-Level Concepts – Explore algebraic reasoning, probability, or coordinate plane transformations. 3. Offer Choice in Assignments & Projects – Let students select how they demonstrate understanding (e.g., presentations, investigations, or games). 4. Incorporate Real-World Problem-Solving – Connect math concepts to real-life scenarios like budgeting, architecture, or engineering. 5. Encourage Mathematical Creativity – Have students invent their own math problems, explore multiple solution strategies, or create visual proofs.