Mathematics

Grade 5

CURRICULUM GUIDE
Approved

August 22, 2017

Mr. David C. Mango, Superintendent
Mrs. Debra Grigoletti, Director of Curriculum & Instruction

Developed by:
Jennifer Black
Kara Feulner

This curriculum may be modified through varying techniques, strategies and materials, as per an individual student's Individualized Education Plan (IEP).

Approved by the Insert district Board of Education
At the regular meeting held on August 22, 2017

And
Aligned with the New Jersey Student Learning Standards

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Philosophy and Rationale

Learning to identify and manipulate numbers, understanding basic operations, manipulating data and information, and building critical thinking and problem solving skills enables students to identify, understand, and solve real world problems using abstract and quantitative reasoning, existing structures and appropriate tools. Learning to use mathematical skills gives students a range of skills and applications for success throughout their lives.

Mission Statement

Building on tradition and success, the mission of the Hackettstown School District is to educate and inspire students through school, family, and community partnerships so that all become positive, contributing members of a global society, with a life-long commitment to learning. It is the expectation of this school district that all pupils achieve the New Jersey Student Learning Standards at all grade levels.

Scope and Sequence

Unit 1a: Place Value, Multiplication, and Expressions

- **Lesson Skills and Strategies**
  - Lesson 1: Investigate • Place Value and Patterns
  - Lesson 2: Place Value of Whole Numbers
  - Lesson 3: Algebra • Properties
  - Lesson 4: Algebra • Powers of 10 and Exponents
  - Lesson 5: Algebra • Multiplication Patterns
  - Lesson 6: Multiply by 1-Digit Numbers
  - Lesson 7: Multiply by Multi-Digit Numbers
  - Lesson 8: Relate Multiplication to Division
  - Lesson 9: Problem Solving • Multiplication and Division
  - Lesson 10: Algebra • Numerical Expressions
  - Lesson 11: Algebra • Evaluate Numerical Expressions
  - Lesson 12: Algebra • Grouping Symbols

- **Vocabulary**
  - Multiply, place value, period, Distributive Property, factor, product, base, exponent

- **Time Allotment**
  - **19 school days**

Unit 1b: Divide Whole Numbers

- **Lesson Skills and Strategies**
  - Lesson 1: Place the First Digit
  - Lesson 2: Divide by 1-Digit Divisors
  - Lesson 3: Investigate • Division with 2-Digit Divisors
  - Lesson 4: Partial Quotients
  - Lesson 5: Estimate with 2-Digit Divisors
  - Lesson 6: Divide by 2-Digit Divisors
  - Lesson 7: Interpret the Remainder
  - Lesson 8: Adjust Quotients
  - Lesson 9: Problem Solving • Division

- **Vocabulary**

- Dividend, divisor, quotient, remainder, inverse operations, partial quotients, partial quotients, compatible numbers, estimate,

- **Time Allotment**
  - **16 school days**

Unit 1c: Add and Subtract Decimals

- **Lesson Skills and Strategies**
  - Lesson 1: Investigate • Thousandths
  - Lesson 2: Place Value of Decimals
  - Lesson 3: Compare and Order Decimals
  - Lesson 4: Round Decimals
  - Lesson 5: Investigate • Decimal Addition
  - Lesson 6: Investigate • Decimal Subtraction
  - Lesson 7: Estimate Decimal Sums and Differences
  - Lesson 8: Add Decimals
  - Lesson 9: Subtract Decimals
  - Lesson 10: Algebra • Patterns with Decimals
  - Lesson 11: Problem Solving • Add and Subtract Money
  - Lesson 12: Choose a Method

- **Vocabulary**
  - Thousandth, hundredth, tenth, place value, round, benchmark, sequence, term

- **Time Allotment**
  - **19 school days**

Unit 1d: Multiply Decimals

- **Lesson Skills and Strategies**
  - Lesson 1: Algebra • Multiplication Patterns with Decimals
  - Lesson 2: Investigate • Multiply Decimals and Whole Numbers
  - Lesson 3: Multiplication with Decimals and Whole Numbers
  - Lesson 4: Multiply Using Expanded Form
  - Lesson 5: Problem Solving • Multiply Money
  - Lesson 6: Investigate • Decimal Multiplication
  - Lesson 7: Multiply Decimals
  - Lesson 8: Zeros in the Product

- **Vocabulary**
  - Decimal, hundredths, multiplication, ones, pattern, place value, product, tenths, thousandths, expanded form

- **Time Allotment**
  - **15 school days**

Unit 1e: Divide Decimals

- **Lesson Skills and Strategies**
  - Lesson 1: Algebra • Division Patterns with Decimals
  - Lesson 2: Investigate • Divide Decimals by Whole Numbers
  - Lesson 3: Estimate Quotients
  - Lesson 4: Division of Decimals by Whole Numbers
  - Lesson 5: Investigate • Decimal Divisions
  - Lesson 6: Divide Decimals
  - Lesson 7: Write Zeros in the Dividend
  - Lesson 8: Problem Solving • Decimal Operations

- **Vocabulary**
  - Decimal, decimal point, dividend, divisor, exponent, quotient, exponent, quotient hundredth, tenth, compatible numbers, estimate, equivalent fractions, remainder

- **Time Allotment**
  - **15 school days**

Unit 2a: Add and Subtract Fractions with Unlike Denominators

- **Lesson Skills and Strategies**
  - Lesson 1: Investigate • Addition with Unlike Denominators
  - Lesson 2: Investigate • Subtraction with Unlike Denominators
  - Lesson 3: Estimate Fraction Sums and Differences
  - Lesson 4: Common Denominators and Equivalent Fractions
  - Lesson 5: Add and Subtract Fractions
  - Lesson 6: Add and Subtract Mixed Numbers
  - Lesson 7: Subtraction with Renaming
  - Lesson 8: Algebra • Patterns with Fractions
  - Lesson 9: Problem Solving • Practice Addition and Subtraction
  - Lesson 10: Algebra • Use Properties of Addition

- **Vocabulary**
  - Sum, difference, benchmark, common denominator, common multiples, equivalent fractions, simplest form, mixed number, benchmark

- **Time Allotment**
  - **17 school days**

Unit 2b: Multiply Fractions

- **Lesson Skills and Strategies**
  - Lesson 1: Find Part of a Group
  - Lesson 2: Investigate • Multiply Fractions and Whole Numbers
  - Lesson 3: Fraction and Whole Number Multiplication
  - Lesson 4: Investigate • Multiply Fractions
  - Lesson 5: Compare Fraction Factors and Products
  - Lesson 6: Fraction Multiplication
  - Lesson 7: Investigate • Area and Mixed Numbers
  - Lesson 8: Compare Mixed Number Factors and Products
  - Lesson 9: Multiply Mixed Numbers
  - Lesson 10: Problem Solving • Find Unknown Lengths

- **Vocabulary**
  - Denominator, numerator, product, equivalent fraction, simplest form, ary mixed number

- **Time Allotment**
  - **17 school days**

Unit 2c: Divide Fractions

- **Lesson Skills and Strategies**
  - Lesson 1: Investigate • Divide Fractions and Whole Numbers
  - Lesson 2: Problem Solving • Use Multiplication
  - Lesson 3: Connect Fractions to Division
  - Lesson 4: Fraction and Whole-Number Division
  - Lesson 5: Interpret Division with Fractions

- **Vocabulary**
  - Dividend, fraction, quotient, whole number, equation

- **Time Allotment**
  - **12 school days**

Unit 3a: Algebra: Patterns and Graphing

- **Lesson Skills and Strategies**
  - Lesson 1: Line Plot
  - Lesson 2: Ordered Pairs
  - Lesson 3: Investigate • Graph Data
  - Lesson 4: Line Graphs
  - Lesson 5: Numerical Patterns
  - Lesson 6: Problem Solving • Find a Rule
  - Lesson 7: Graph and Analyze Relationships

- **Vocabulary**
  - Data, line plot, ordered pair, origin, x-axis, x-coordinate, y-axis, y-coordinate, degree Fahrenheit (°F), interval, line graph, scale,

- **Time Allotment**
  - **10 school days**

Chapter 3b: Convert Units of Measure

- **Lesson Skills and Strategies**
  - Lesson 1: Customary Length
  - Lesson 2: Customary Capacity
  - Lesson 3: Weight
  - Lesson 4: Multi-step Measurement Problems
  - Lesson 5: Metric Measures
  - Lesson 6: Problem Solving • Customary and Metric Conversions
  - Lesson 7: Elapsed Time

- **Vocabulary**
  - Foot, inch, mile, yard, capacity, cup, fluid ounce, gallon, pint, quart, ounce, pound, ton, weight, dekameter, centimeter, decimeter, gram, kilogram, kilometer, liter, mass, meter, milligram, milliliter, millimeter, elapsed time

- **Time Allotment**
  - **10 school days**

<u>**Unit 3c**</u>**: Geometry and Volume**

- **Lesson Skills and Strategies**
    - Lesson 1: Polygons
    - Lesson 2: Triangles
    - Lesson 3: Quadrilaterals
    - Lesson 4: Three-Dimensional Figures
    - Lesson 5: Investigate • Unit Cubes and Solid Figures
    - Lesson 6: Investigate • Understand Volume
    - Lesson 7: Investigate • Estimate Volume
    - Lesson 8: Volume of Rectangular Prisms
    - Lesson 9: Algebra • Apply Volume Formulas
    - Lesson 10: Problem Solving • Compare Volumes
    - Lesson 11: Find Volume of Composed Figures

- **Vocabulary**
    - Congruent, heptagon, nonagon, polygon, regular polygon, decagon, hexagon, octagon, pentagon, quadrilateral, equilateral triangle, isosceles triangle, scalene triangle, acute triangle, obtuse triangle, right triangle, parallel lines, parallelogram, perpendicular lines, rectangle, rhombus, trapezoid, base, decagonal prism, hexagonal prism, lateral face, octagonal prism, pentagonal prism, pentagonal pyramid, polyhedron, prism, pyramid, unit cube, cubic unit, volume

- **Time Allotment**
    - **16 school days**

Unit 1

Stage 1: Desired Results

Topic: Addition and Subtraction within 1000

Content Standards:
- **5.NBT.A.1** Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
- **5.OA.A.1** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
- **5.NBT.A.2** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
- **5.NBT.B.5** Fluently 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.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 can you describe the relationship between two place-value positions?
- How do you read, write, and represent whole numbers through hundred millions?
- How can you use properties of operations to solve problems?
- How can you use an exponent to show powers of 10?
- How can you use a basic fact and a pattern to multiply by a 2-digit number?
- How do you multiply by 1-digit numbers?
- How do you multiply by Multi-digit numbers?
- How is multiplication used to solve a division problem?
- How can you use the strategy solve a simpler problem to help you solve a division problem?
- How can you use a numerical expression to describe a situation?

- In what order must operations be evaluated to find the solution to a problem?
- In what order must operations be evaluated to find a solution when there are parentheses within parentheses?
- How can you tell where to place the first digit of a quotient without dividing?
- How do you solve and check division problems?
- How can you use base-ten blocks to model and understand division of whole numbers?
- How can you use partial quotients to divide by 2-digit divisors?
- How can you use compatible numbers to estimate quotients?
- How can you divide by 2-digit divisors?
- When solving a division problem, when do you write the remainder as a fraction?
- How can you adjust the quotient if your estimate is too high or too low?
- How can the strategy draw a diagram help you solve a division problem?
- How can you describe the relationship between two decimal place-value positions?
- How do you read, write, and represent decimals through thousandths?
- How can you use place value to compare and order decimals?
- How can you use place value to round decimals to a given place?
- How can you use base-ten blocks to model decimal addition?
- How can you use base-ten blocks to model decimal subtraction?
- How can you estimate decimal sums and differences?
- How can place value help you add decimals?
- How can place value help you subtract decimals?
- How can you use addition or subtraction to describe a pattern or create a sequence with decimals?
- How can the strategy make a table help you organize and keep track of your bank account balance?
- Which method could you choose to find decimal sums and differences?
- How can patterns help you place the decimal point in a product?
- How can you use a model to multiply a whole number and a decimal?
- How can you use properties and place value to multiply a decimal and a whole number?
- How can you use expanded form and place value to multiply a decimal and a whole number?
- How can the strategy draw a diagram help you solve a decimal multiplication problem?
- How can you use a model to multiply decimals?
- What strategies can you use to place a decimal point in a product?
- How do you know you have the correct number of decimal places in your product?
- How can patterns help you place the decimal point in a quotient?
- How can you use a model to divide a decimal by a whole number?
- How can you estimate decimal quotients?
- How can you divide decimals by whole numbers?
- How can you use a model to divide by a decimal?

- How can you place the decimal point in the quotient?
- How do you use the strategy work backward to solve multistep decimal problems?

Enduring Understandings:

- Students will be able to use place value, multiplication, and expressions to represent and solve problems

Knowledge and Skills (SWBAT embedded course proficiencies):

Students will be able to:
- Recognize the 10 to 1 relationship among place-value positions.
- Read and write whole numbers through hundred millions.
- Use properties of operations to solve problems.
- Write and evaluate repeated factors in exponent form.
- Use a basic fact and a pattern to multiply mentally by multiples of 10, 100, and 1,000.
- Multiply by 1-digit numbers.
- Multiply by multi-digit numbers.
- Use multiplication to solve division problems.
- Use the strategy solve a simpler problem to solve problems.
- Write numerical expressions.
- Use the order of operations to evaluate numerical expressions.
- Evaluate numerical expressions with parentheses, brackets, and braces.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations Benchmarks (embedded student proficiencies)

Assessment Methods (formative, summative, other evidence and/or student self-assessment):

- "Show What You Know" pages
- Personal Math Trainers - teacher created and assigned on chromebooks
- Teacher observation
- Class participation
- Teacher created lesson checks
- Homework and practice pages as formative assessments
- Mid-chapter checkpoint assessment
- Chapter summative assessments

Stage 3: Learning Plan

In this beginning unit of the Go Math! Series, we will be teaching our fifth grade students Common Core Math Standards regarding fluency with whole numbers and decimals. Through a variety of print and digital learning styles and materials provided by the Go Math! Series, students learn and review with models, a variety of manipulatives, and pictures/symbols to help answer abstract problems. Each student is provided with their own chapter book, which contains all of their individual chapter print resources.

Go Math provides a strong vocabulary base which is consistent through the whole series. Each chapter begins with watching the digital Interactive Student Edition, followed by the Show What You Know and Vocabulary Builder found in their individual chapter books. Students will then complete the Unlock the Problem with real world scenarios with teacher guidance. Teachers provide additional review with the lesson's Share and Show, Problem Solving - Applications, and Practice and Homework assignments. Additional review is also provided with Personal Math Trainers, iTools, and other teacher chosen materials.

Teachers will enhance skill learning by creating learning stations, using differentiated lesson materials, and use Go Math! provided resources to help each individual learner. This also includes modified teacher picked materials and resources for additional reinforcement and practice, along with individual instruction as needed.

Time Allotment:
86 school days

Resources (same but can modify for chapter):
Houghton-Mifflin Go Math! mathematics series for fifth grade

Supplementary Resources:
Go Math! Curriculum Materials such as:
- Mathematics Readers, Smartboard Interactive Lessons, Grab-and-Go, Family Connections, Teacher Websites, Chapter Resources (Reteach and Enrich)

Differentiation:
Whole Group Instruction, Small Group Instruction, One-on-one Instruction, Math Centers, Flash cards, Learning Games, In-Class Support, Think Central (Dashboard), Smartboard (Smart Exchange), Go Math! Chapter Resources, Enrichment Activities

<u>**Unit 2**</u>

<u>**Stage 1: Desired Results**</u>

Topic: Addition, Subtraction, Multiplication, and Division of Fractions

Content Standards:
- **5.NF.A.1** Adding and subtracting fractions with unlike denominators including mixed numbers by replacing given fractions with equivalent fractions.
- **5.NF.A.2** Solve word problems involving addition and subtraction for fractions referring to the same whole, including cases of unlike denominators.
- **5.NF.B.3** Interpret a fraction 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.B.4a** Apply and extend previous understanding of multiplication to multiply a fraction or whole numbers by a fraction.
- **5.NF.B.4b** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. Multiply fractional side lengths to find areas of rectangles and represent fractions products as rectangular areas.
- **5.NF.B.5a** Interpret multiplication as scaling (resizing). 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.
- **5.NF.B.5b** Interpret multiplication as scaling, by explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number, and explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number.
- **5.NF.B. 6** Solve real world problems involving multiplication of fractions and mixed numbers.
- **5.NF.B.7a** Interpret division of a unit fraction by a non-zero number, and compute such quotients .
- **5.NF.B.7b** Interpret division of a whole number by a unit fraction, and compute such quotients.
- **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.

Essential Questions:

- How can you use models to add fractions that have different denominators?
- How can you use models to subtract fractions that have different denominators?
- How can you make reasonable estimates of fraction sums and differences?
- How can you add and subtract mixed numbers with unlike denominators?
- How can you use a common denominator to add and subtract fractions with unlike denominators?
- How can you add and subtract mixed numbers with unlike denominators?
- How can you use renaming to find the difference of two mixed numbers?
- How can you use addition or subtraction to describe a pattern or create a sequence with fractions?
- How can the strategy work backward help you solve a problem with fractions that involves addition and subtraction?
- How can properties help you add fractions with unlike denominators?
- How can you find a fractional part of a group?
- How can you use a model to show the product of a fraction and a whole number?
- How can you find the product of a fraction and a whole number without using a model?
- How can you use an area model to show the product of two fractions?
- How does the size of the product compare to the size of one factors when multiplying fractions?
- How do you multiply fractions?
- How can you use a unit tile to find the area of a rectangle with fractional side lengths?
- How does the size of the product compare to the size of one factor when multiplying fractions greater than one?
- How do you multiply mixed numbers?
- How can you use the strategy, guess, check, and revise to solve problems with fractions?
- How do you divide a whole number by a fraction and divide a fraction by a whole number?
- How can the strategy draw a diagram help you solve fraction division problems by writing a multiplication sentence?
- How does a fraction represent division?
- How can you divide fractions by solving a related multiplication sentence?
- How can you use diagrams, equations, and story problems to represent division?

Enduring Understandings:

- Students will be able to explain and use a variety of strategies to add, subtract, multiply, and divide fractions.

Knowledge and Skills (SWBAT embedded course proficiencies):

Students will be able to:

- Use models to add and subtract fractions with unlike denominators.
- Make reasonable estimates of fraction sums and differences.
- Find a common denominator or a least common denominator to write equivalent fractions.
- Rename to find the difference of two mixed numbers.
- Identify, describe, and create numeric patterns with fractions.
- Solve problems using the strategy *work backwards*.
- Use properties, to add fractions with unlike denominators.
- Model to find a fractional part.
- Multiply fractions using models.
- Relate the size of the product compared to the size of one factor when multiplying fractions.
- Solve problems using the strategy *guess, check, and revise.*
- Divide a whole number by a fraction and divide a fraction by a whole number.
- Solve problems using the strategy *draw a diagram.*
- Interpret a fraction as division and solve whole number division problems that result in a fraction or mixed number.
- Represent division by drawing diagrams and writing story problems and equations.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations Benchmarks (embedded student proficiencies)

Assessment Methods (formative, summative, other evidence and/or student self-assessment):

- "Show What You Know" pages
- Personal Math Trainers - teacher created and assigned on chromebooks
- Teacher observation
- Class participation
- Teacher created lesson checks
- Homework and practice pages as formative assessments
- Mid-chapter checkpoint assessment
- Chapter summative assessments

Stage 3: Learning Plan

In Grade 5, students extend their understanding of fraction operations by using equivalent fractions as a strategy to add and subtract fractions with unlike denominators. In Chapter 6, students learn to use models, benchmark fractions, equivalent fractions, to add and subtract fractions successfully. They also use patterns to write a rule to describe a sequence of fractions. Understanding patterns enables students to discover numerical relationships and sets the foundations for work with functions in later grades. In Chapter 7, students investigate multiplication of fractions by relating it to scaling and to predict the relative sizes of factors and products. They will use models to guide their investigation of fractions, and work directly in developing algorithms for multiplications of fractions and mixed numbers. In Chapter 8, students use models to conceptualize dividing a whole number by a unit fraction and dividing a unit fraction by a whole number. They use the inverse relationship between division and multiplication to write related multiplication expressions. Students are expected to represent division expressions with diagrams, equations, and word problems.

Time Allotment:
46 school days/lessons

Resources (same but can modify for chapter):
Houghton-Mifflin Go Math! mathematics series for fifth grade

Supplementary Resources:
Go Math! Curriculum Materials such as:
- Mathematics Readers, Smartboard Interactive Lessons, Grab-and-Go, Family Connections, Teacher Websites, Chapter Resources (Reteach and Enrich)

Differentiation:
Whole Group Instruction, Small Group Instruction, One-on-one Instruction, Math Centers, Flash cards, Learning Games, In-Class Support, Think Central (Dashboard), Smartboard (Smart Exchange), Go Math! Chapter Resources, Enrichment Activities

Unit 3

Stage 1: Desired Results

Topic: Geometry and Measurement

Content Standards:
- **5. G.A.1** Use a pair of perpendicular number lines called axes, to define a coordinate system with the intersection of the lines arranged to coincide with the 0 on each line and 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.
- **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.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.MD.B.2** Make a line plot to display a data set of measurements in fractions of a unit. Use operations on fractions for this grade to solve problems involving information presented in line plots.
- **5.MD.C.3** Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
- **5.MD.C.4** Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
- **5.MD.C.5a** Find the volume of a right rectangular prism with whole number side lengths by packing it with unit cubes, and show that the volume is that same as would be found by multiplying the edge lengths.
- **5.MD.C.5b** Apply the formulas *V=lxwxh and V=bxh* for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.
- **5.MD.C.5c** Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.
- **5. OA.B.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms.   Form ordered pairs consisting of corresponding terms from the two patterns and graph the ordered pairs on a coordinate plane.

Essential Questions:

- How can a line plot help you find an average with data given in fractions?
- How can you identify and plot points on a coordinate grid?
- How can you use a coordinate grid to display data collected in an experiment?
- How can you use a line graph to display and analyze real-world data?
- How can you identify a relationship between two numerical patterns?
- How can you use the strategy solve a simpler problem to help you solve a problem with patterns?
- How can you write and graph ordered pairs on a coordinate grid using two numerical patterns?
- How can you compare and convert customary units of length?
- How can you compare and convert customary units of capacity?
- How can you compare and convert customary units of weight?
- How can you solve multistep problems that include measurement conversion?
- How can you compare and convert metric units?
- How can you use the strategy make a table to help solve problems about customary and metric conversions?
- How can you solve elapsed time problems by converting units of time?
- How can you identify and classify polygons?
- How can you classify triangles?
- How can you classify and compare quadrilaterals?
- How can you identify, describe, and classify three dimensional figures?
- What is a unit cube and how can you use it to build a solid figure?
- How can you use unit cubes to find the volume of a rectangular prism?
- How can you use an everyday object to estimate the volume of a rectangular prism?
- How can you find the volume of a rectangular prism?
- How can you use a formula to find the volume of a rectangular prism?
- How can you use the strategy make a table to compare different rectangular prisms with the same volume?
- How can you find the volume of rectangular prisms that are combined?

Enduring Understandings:

- Students will be able to model and analyze numerical patterns of coordinate pairs on a coordinate grid, convert units of measure within the customary or the metric system providing opportunity to attend to precision and check the reasonableness of results, and construct viable arguments and critique the reasoning of attribute/properties of figures to meet specific definitions.

Knowledge and Skills (SWBAT embedded course proficiencies):

Students will be able to:
- Make and use line plots with fractions to solve problems.
- Graph and name points on a coordinate grid using ordered pairs.
- Collect and graph data on a coordinate grid.
- Analyze and display data in a line graph.
- Use two rules to generate numerical pattern and identify the relationship between the corresponding terms in the patterns.
- Solve problems using the strategy solve a simpler problem.
- Compare, contrast, and convert customary units of length.
- Compare, contrast, and convert customary units of capacity.
- Compare, contrast, and convert metric units.
- Solve problems about conversions using the strategy *make a table.*
- Convert units of time to solve elapsed time problems.
- Estimate, find, and use a formula for the volume of rectangular prism.
- Use the strategy *make a table* to compare volumes.
- Find the volume of combined rectangular prisms.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations Benchmarks (embedded student proficiencies)

Assessment Methods (formative, summative, other evidence and/or student self-assessment):

- "Show What You Know" pages
- Personal Math Trainers - teacher created and assigned on chromebooks
- Teacher observation
- Class participation
- Teacher created lesson checks
- Homework and practice pages as formative assessments
- Mid-chapter checkpoint assessment
- Chapter summative assessments

Stage 3: Learning Plan

In Grade 5, students continue to make and use line plots, including those with fractional measurements. Students will use line graphs to display and analyze real world data. Students

identify relationships between number patterns and solve problems involving patterns. While exploring conversion of measurements and time, the major work includes performing operations with multi-digit numbers and with decimals to hundredths. The use of place value understanding by limiting conversions to multiplication and division by powers of 10 is extended. Students will continue developing fractional conversion factors and require multiplication of whole numbers and fractions. Students begin to build an understanding of volume, first by counting unit cubes, then connect this concept to the area of the base times the height. The concept is extended when introducing the solid figures composed of multiple non overlapping rectangular prisms.

Time Allotment:
36 school days/lessons

Resources (same but can modify for chapter):
Houghton-Mifflin Go Math! mathematics series for fifth grade

Supplementary Resources:
Go Math! Curriculum Materials such as:
- Mathematics Readers, Smartboard Interactive Lessons, Grab-and-Go, Family Connections, Teacher Websites, Chapter Resources (Reteach and Enrich)

Differentiation:
Whole Group Instruction, Small Group Instruction, One-on-one Instruction, Math Centers, Flash cards, Learning Games, In-Class Support, Think Central (Dashboard), Smartboard (Smart Exchange), Go Math! Chapter Resources, Enrichment Activities

<p style="text-align:center">http://www.state.nj.us/education/cccs/</p>

Integration of 21st Century Theme(s)

The following websites are sources for the following 21st Century Themes and Skills:
http://www.nj.gov/education/code/current/title6a/chap8.pdf
http://www.p21.org/about-us/p21-framework .
http://www.state.nj.us/education/cccs/standards/9/index.html

21st Century Interdisciplinary Themes (into core subjects)
• Global Awareness
• Financial, Economic, Business and Entrepreneurial Literacy
• Civic Literacy
• Health Literacy
• Environmental Literacy
Learning and Innovation Skills
• Creativity and Innovation
• Critical Thinking and Problem Solving
• Communication and Collaboration
Information, Media and Technology Skills
• Information Literacy
• Media Literacy
• ICT (Information, Communications and Technology) Literacy
Life and Career Skills
• Flexibility and Adaptability
• Initiative and Self-Direction
• Social and Cross-Cultural Skills
• Productivity and Accountability
• Leadership and Responsibility
Integration of Digital Tools
- ● Classroom computers/laptops
- ● Technology Lab
- ● FM system
- ● Other software programs