NEW MILFORD PUBLIC SCHOOLS
New Milford, Connecticut

Grade 6 Mathematics
June 2016

New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Course Overview

Grade 6 Connected Mathematics Program (CMP3) is problem-centered. Mathematical tasks for students in class and in homework are the primary vehicle for student engagement with the mathematical concepts to be learned. Ideas are explored through these mathematical tasks in the depth necessary to allow students to make sense of them. The curriculum helps students grow in their ability to reason effectively with information represented in graphic, numeric, symbolic, and verbal forms and to move flexibly among these representations to produce fluency in both conceptual and procedural knowledge. Topics specific to grade 6 include: ratio reasoning to solve problems, operations with rational numbers, algebraic expressions and equations.

Pacing Guide

Unit Title	# of Weeks
Unit 1: Factors and Multiples	4 Weeks
Unit 2: Ratios, Rational Numbers, and Equivalences	6 Weeks
Unit 3: Understanding Fraction Operations	6 Weeks
Unit 4: Computing with Decimals and Percents	7 Weeks
Unit 5: Focus on Algebra	5 Weeks
Unit 6: Two and Three Dimensional Measurement	2 Weeks
Unit 7: Statistics and Data Analysis	3 Weeks

New Milford Public Schools

Committee Member(s): Cortni Muir, Peggy Neal, Tamara Gloster Unit Title: Unit 1 – Factors and Multiples	Course/Subject: Mathematics Grade Level: 6 # of Weeks: 4

Identify Desired Results
Common Core Standards

Standards of Focus in the Unit
- (6.NS.B.4) Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
- (6.EE.A.1) Write and evaluate numerical expressions involving whole-number exponents
- (6.EE.A.3) Apply the properties of operations to generate equivalent expressions.

Additional Standards in the Unit
- (6.EE.A.2) Write, read, and evaluate expressions in which letters stand for numbers.
- (6.EE.A.4) Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

Standards for Mathematical Practices
- MP 1 - Make sense of problems and persevere in solving them**.**
- **MP 2 - Reason abstractly and quantitatively.**
- **MP 3 - Construct viable arguments and critique the reasoning of others.**
- MP 4 - Model with mathematics.
- MP5 - Use appropriate tools strategically.
- **MP6 - Attend to precision.**
- **MP7 - Look for and make use of structure.**
  MP8 - Look for and express regularity in repeated reasoning.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	Essential Questions Inquiry used to explore generalizations
- There are relationships among factors, multiples, divisors, and products. - Real world situations can be solved using factors, multiples, and properties of numbers.	- How do I know which situations call for common factors, common multiples, least common multiple, or greatest common factor? - Which strategies can help me find common factors, common multiples, least common multiple, or greatest common factor?

	• How can breaking a number into factors or writing multiples of a number help me solve the problem and what does it tell me about the situation?

Students will know the following:
- Various relationships among factors, multiples, divisors, and products.
- Why two expressions are equivalent.

Students will be able to do the following:
- Classify numbers as prime, composite, even, odd, or square.
- Recognize situations that call for the greatest common factor and situations that call for the least common multiple.
- Develop strategies for finding factors and multiples and use those strategies to solve problems.
- Recognize that the Distributive Property relates the multiplicative and additive structures of whole numbers.
- Use the properties of operations of numbers, including the Distributive Property, and the Order of Operations to write equivalent numerical expressions, and to solve problems.

Character Attributes
- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies
- *** All available on CMP3 Dashboard
- The Factor Game
- The Product Game

Develop Teaching and Learning Plan

Teaching Strategies:	Learning Activities: (Students will..)
Use a problem-centered model with teacher-directed mini-lesson • Embed important mathematical ideas within contexts of interesting problems. • Work with small groups of students to build conceptual understanding, fluency and application of key math focus areas. **Use games to develop concepts and practice skills.** **Use student-centered activities and worthwhile math tasks.**	• Play the Factor Game to distinguish between numbers that have many factors and numbers with few factors so that they can be categorized as either prime or composite. • Play the Product Game to find products of factors, as well as factor pairs, while focusing on the multiplicative structure of numbers. • Investigate Riding Ferris Wheels and Bagging Snacks to determine whether a solution to a real-life situation involves finding a common multiple, a

• Arrange student seating so that learners can move freely to post, analyze, and discuss their work.	common factor, the least common multiple, or the greatest common factor and solve the situation.
Use a variety of grouping structures.	• Use prime factorization to find the least common multiple and greatest common factor of two numbers.
• Collaborative groups, partners, individuals.	• Use the area of a rectangle to illustrative what the Distributive Property means for multiplication, addition and subtraction, and how it demonstrates equivalent expressions.
• Clearly communicate expectations about group work to students.	
Orchestrate class/student to student discourse.	• Explore the relationship between the multiplicative and additive structure of numbers, using the Distributive Property, and the order of operations.
• Focus discussions on important mathematics and student strategies.	
• Facilitate student-to-student discourse.	
• Elicit participation from all students over the course of several discussions.	

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	Other Evidence Application that is functional in a classroom context to evaluate student achievement of desired results
Title: My Favorite Number Goal: Students will use the math concepts from this unit to describe a particular number of their choice. Role: Student/strategist Audience: Teacher and classmates Situation: Students choose a number between 10 and 100, upon completion of each investigation; they take notes, writing several math facts about their chosen number. Product or Performance: A report, a poem, a story, a poster, or product of their choice as approved by the teacher. Standards for Success: A scoring rubric is shared with students at the onset of the project.	**Checkpoints** • Investigation Classwork and ACE (Applications, Connections, Extensions) exercises. • Mathematical Reflection Questions at end of each Investigations • Looking Back which can be used as review, helping students to stand back and look at the big ideas and connections in the unit. **Surveys of Knowledge** • Quizzes: individual assessment instruments. • Unit Tests: individual assessment that informs teachers about students' ability to apply, refine, modify, and possibly extend the mathematical knowledge and skills acquired. • Performance Task

Suggested Resources

• Connected Mathematics Project 3 (CMP3) Unit 1, Prime Time

- Teaching Student-Centered Mathematics, 6-8 by Van de Walle, et. al
- CT State Department of Education, Mathematics Units of Study, Grade 6

New Milford Public Schools

Committee Member(s): Cortni Muir, Peggy Neal, Tamara Gloster Unit Title: Unit 2: Ratios, Rational Numbers, and Equivalence	Course/Subject: Mathematics Grade Level: 6 # of Weeks: 6
Identify Desired Results	
Common Core Standards	

Standards of Focus in Unit
- (6.RP.A.1) Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
- (6.RP.A.2) Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship.
- (6.RP.A.3) Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
- (6.NS.C.5) Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
- (6.NS.C.6) Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates
- (6.NS.C.7) Understand ordering and absolute value of rational numbers.

Additional Standards in Unit
- (6.NS.B.4) Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

Standards for Mathematical Practices
- **MP 1 - Make sense of problems and persevere in solving them.**
- MP 2 - Reason abstractly and quantitatively.
- MP 3 - Construct viable arguments and critique the reasoning of others.
- **MP 4 - Model with mathematics.**
- **MP5 - Use appropriate tools strategically.**
- MP6 - Attend to precision.
- **MP7 - Look for and make use of structure.**
- MP8 - Look for and express regularity in repeated reasoning.

Enduring Understandings Generalizations of desired understanding via essential questions	**Essential Questions** Inquiry used to explore generalizations

(Students will understand that …)	
• Ratio language and notation is used to compare quantities. • Fractions represent numbers, while ratios represent comparisons. • Scaling and partitioning are strategies to reason proportionally. • Reason about situations using context, models, drawings, and estimations including finding the absolute value, opposites, locations and distances on a number line. • Equivalence of fractions, ratios, rate tables, and unit rates can all be used to solve problems.	• What representations might be helpful in understanding the situation and the relationships among quantities? • What strategies can I use to compare and find the equivalent forms of fractions, decimals, ratios, and percents? • What strategies can I use to reason about numbers greater than or less than 0? • How can I use equivalence of fractions, ratios, rate tables, and unit rates to solve problems?

Expected Performances
What students should know and be able to do

Students will know the following:
- Fractions, decimals, ratios, rates and percents are used to measure and compare quantities.
- Equivalence of fractions, decimals, rates, ratios and percents are used to solve problems.

Students will be able to do the following:
- Expand interpretations of a fraction (proper, improper, and mixed) to include expressing a fraction as a part-whole relationship, as a number, and as an indicated division.
- Use decimals to represent fractional quantities with attention to place value.
- Use benchmarks to estimate, compare, order and solve problems of fractions and decimals.
- Apply a variety of scaling and partitioning strategies to solve problems.
- Use ratios and associated rates to compare quantities.
- Recognize that equivalent fractions represent the same amount, distance, or location; develop strategies for finding and using equivalent fractions and/or ratios.
- Build and use rate tables of equivalent ratios to solve problems.
- Recognize that a number and its opposite are at equal distances from 0 on a number line; is the absolute value of a number, and can describe real world quantities.

Character Attributes
- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

• None

Develop Teaching and Learning Plan

Teaching Strategies:	Learning Activities:
Use a problem-centered model with teacher-directed mini-lesson • Embed important mathematical ideas within contexts of interesting problems. • Work with small groups of students to build conceptual understanding, fluency and application of key math focus areas. **Use games to develop concepts and practice skills.** **Use student-centered activities and worthwhile math tasks.** • Arrange student seating so that learners can move freely to post, analyze, and discuss their work. **Use a variety of grouping structures.** • Collaborative groups, partners, individuals. • Clearly communicate expectations about group work to students. **Orchestrate class/student to student discourse.** • Focus discussions on important mathematics and student strategies. • Facilitate student-to-student discourse. • Elicit participation from all students over the course of several discussions.	• Develop strategies for ratio comparisons using Class Fundraising Thermometers. • Write "for every" statements to explain a ratio comparison. • Fold and use fraction strips to determine how numerator and denominators change to make equivalent fractions and find part of a number. • Describe what it means for two fractions and two ratios to be equivalent using tape diagrams. • Use Chewy Fruit Worms models to determine unit rates, part-to-part ratio relationships and part-to-whole fractions. • Analyze rate tables to determine patterns and develop strategies to find missing rate information. • Draw and use number lines to think about fractions greater than 1 and less than 0, and develop understanding of absolute value. • Compare benchmarks to compare rational numbers to determine which is greater. • Determine fraction/decimal equivalents by modeling with a pan of lasagna. • Draw and analyze number lines to estimate and compare decimals. • Make comparisons of decimal numbers using a percent bar. • Partition a percent bar to model one number as a percent of another number. • Analyze Art Exhibit space to compare percents, ratios, and fractions.

Assessments

Performance Task(s)	Other Evidence
Authentic application to evaluate student achievement of	Application that is functional in a classroom context to

desired results designed according to GRASPS (one per marking period)	evaluate student achievement of desired results
Title: Home Interior Paint Goal: Students will determine the percent of different pigment colors given the ratio values, determine ratio values given the percent of pigments, adjust ratio values to arrive at the correct percent, determine the percent of an amount given the parts and wholes, and determine the amount after a 25% increase. Role: student/store clerk at paint store Audience: customer Situation: A student is working in the paint department at a home improvement store. She creates custom paint colors for customers using three different pigment colors: red, blue, and yellow. The paint color that a student creates depends on the ratio of three pigment colors she adds to a can of white base paint. Product or Performance: Determining appropriate ratios of paint colors and ordering information. Standards for Success: A scoring rubric is shared with students at the onset of the project.	**Checkpoints** • Investigation Classwork and ACE (Applications, Connections, Extensions) exercises. • Mathematical Reflection Questions at end of each Investigations • Looking Back which can be used as review, helping students to stand back and look at the big ideas and connections in the unit. **Surveys of Knowledge** • Quizzes: individual assessment instruments. • Unit Tests: individual assessment that informs teachers about students' ability to apply, refine, modify, and possibly extend the mathematical knowledge and skills acquired. • Performance Task

Suggested Resources

- Connected Mathematics Project 3 (CMP3) Unit 2, Comparing Bits and Pieces
- Teaching Student-Centered Mathematics, 6-8 by Van de Walle, et. al
- CT State Department of Education, Mathematics Units of Study, Grade 6

New Milford Public Schools

Committee Member(s): Cortni Muir, Peggy Neal, Tamara Gloster Unit Title: Unit 3 – Understanding Fraction Operations	Course/Subject: Mathematics Grade Level: 6 # of Weeks: 6 weeks

Identify Desired Results

Common Core Standards

Standards of Focus in Unit

- (6.NS.A.1) Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
- (6.NS.B.3) Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- (6.NS.B.4) Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
- (6.EE.A.3) Apply the properties of operations to generate equivalent expressions.
- (6.EE.B.6) Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
- (6.EE.B7) Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.

Additional Standards in Unit

- (6.EE.A.2) Write, read, and evaluate expressions in which letters stand for numbers.

Standards for Mathematical Practices

- MP 1 - Make sense of problems and persevere in solving them.
- **MP 2 - Reason abstractly and quantitatively.**
- MP 3 - Construct viable arguments and critique the reasoning of others.
- **MP 4 - Model with mathematics.**
- MP5 - Use appropriate tools strategically.
- **MP6 - Attend to precision.**
- MP7 - Look for and make use of structure.
- **MP8 - Look for and express regularity in repeated reasoning.**

Enduring Understandings Generalizations of desired understanding via essential questions	Essential Questions Inquiry used to explore generalizations

(Students will understand that …)	
• Estimation is a tool that is used in a variety of situations including check for reasonableness of an answer and making decisions. • For each operation there is a general algorithm for computing with fractions that can be developed from conceptual understanding. • Variables represent unknown values and are used to write expressions or equations that help solve real-world problems. • Sometimes a problem or real world situation can be solved using an inverse operation or repeated addition/subtraction.	• How do you know if your estimate is an underestimate or an overestimate? • What models, diagrams, or estimates might be helpful in understanding the problem situation and the relationships among quantities? • How can you use number properties and equivalent fractions to multiply rational numbers? • What does it mean to divide fractions? What strategies help you to divide fractions? • How do fact families help you solve equations?

Expected Performances
What students should know and be able to do

Students will know the following:
- The four operations with fractions are an extension of whole number operations.
- Fluency of the algorithms for each operation with fractions is needed to solve complex problems.
- Variables are used to represent unknown values when writing expressions and equations to real world problems.

Students will be able to do the following:
- Use benchmarks and other strategies to estimate results of operations with fractions.
- Use estimates to check the reasonableness of exact computations.
- Determine when addition, subtraction, multiplication, or division is the appropriate operation to solve a problem.
- Develop conceptual models and understand algorithms for adding, subtracting, multiplying, and dividing fractions.
- Solve real-world problems using arithmetic operations on fractions.
- Write equations or expressions using variables to represent relationships among real-world situations.

Character Attributes
- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies
- None

Develop Teaching and Learning Plan

Teaching Strategies:

Use a problem-centered model with teacher-directed mini-lesson
- Embed important mathematical ideas within contexts of interesting problems.
- Work with small groups of students to build conceptual understanding, fluency and application of key math focus areas.

Use games to develop concepts and practice skills.

Use student-centered activities and worthwhile math tasks.
- Arrange student seating so that learners can move freely to post, analyze, and discuss their work.

Use a variety of grouping structures.
- Collaborative groups, partners, individuals.
- Clearly communicate expectations about group work to students.

Orchestrate class/student to student discourse.
- Focus discussions on important mathematics and student strategies.
- Facilitate student-to-student discourse.
- Elicit participation from all students over the course of several discussions.

Learning Activities:
- Estimate sums of fractions using Close Fraction and Close Decimal card sorting.
- Explore situations where overestimating or underestimating is useful.
- Explore land sections and recipe cards to add and subtract mixed numbers.
- Draw and analyze brownie pan models to develop area models for multiplying fractions.
- Model multiplication of fractions and mixed numbers.
- Develop strategies and models for dividing fractions by fractions.
- Develop and use the division algorithm for dividing fractions and mixed numbers.
- Write fact families to show the relationships between operations in fraction equations.

Assessments	
Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
N/A	**Checkpoints** • Investigation Classwork and ACE (Applications, Connections, Extensions) exercises. • Mathematical Reflection Questions at end of each Investigations • Looking Back which can be used as

	review, helping students to stand back and look at the big ideas and connections in the unit.
	Surveys of Knowledge
	• Quizzes: individual assessment instruments.
	• Unit Tests: individual assessment that informs teachers about students' ability to apply, refine, modify, and possibly extend the mathematical knowledge and skills acquired.

Suggested Resources
• Connected Mathematics Project 3 (CMP3) Unit 3, Let's Be Rational
• Teaching Student-Centered Mathematics, 6-8 by Van de Walle, et. al
• CT State Department of Education, Mathematics Units of Study, Grade 6

New Milford Public Schools

Committee Member(s): Cortni Muir, Peggy Neal, Tamara Gloster Unit Title: Unit 4 – Computing with Decimals and Percents	Course/Subject: Mathematics Grade Level: 6 # of Weeks: 7 Weeks

Identify Desired Results
Common Core Standards

Standards of Focus in Unit
- (6.NS.B.3) Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- (6.EE.A.3) Apply the properties of operations to generate equivalent expressions.
- (6.RP.A.3) Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

Additional Standards in Unit
- (6.RP.A.1) Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
- (6.RP.A.2) Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship.
- (6.NS.A.1) Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
- (6.NS.B.2) Fluently divide multi-digit numbers using the standard algorithm.
- (6.EE.A.2) Write, read, and evaluate expressions in which letters stand for numbers.
- (6.EE.B.5) Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
- (6.EE.B.6) Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
- (6.EE.B.7) Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.

Standards for Mathematical Practices
- MP 1 - Make sense of problems and persevere in solving them.
- MP 2 - Reason abstractly and quantitatively.
- MP 3 - Construct viable arguments and critique the reasoning of others.

- **MP 4 - Model with mathematics.**
- **MP5 - Use appropriate tools strategically.**
- **MP6 - Attend to precision.**
- **MP7 - Look for and make use of structure.**
- MP8 - Look for and express regularity in repeated reasoning.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	Essential Questions Inquiry used to explore generalizations
- Estimation is a tool that is used in a variety of situations including check for reasonableness of an answer and making decisions. - For each operation there is a general algorithm for computing with decimals that can be developed from conceptual understanding. - Variables represent unknown values and are used to write expressions or equations that help solve real-world problems. - Sometimes a problem or real world situation can be solved using an inverse operation or repeated addition/subtraction. - There are ways to model percent problems.	- How do you know if your estimate is an underestimate or an overestimate? - What models, diagrams, or estimates might be helpful in understanding the problem situation and the relationships among quantities? - What strategies can be used to find the product of any two decimal numbers? - How can a decimal division problem be written in an equivalent form and use it to solve a problem? - How do you decide which operations to perform when a problem involves decimals and percents?

Expected Performances
What students should know and be able to do

Students will know the following:
- The four operations with decimals are an extension of whole number operations.
- Fluency of the algorithms for each operation with decimals is needed to solve complex problems.
- Variables are used to represent unknown values when writing expressions and equations to real world problems.

Students will be able to do the following:
- Use benchmarks and other strategies to estimate results of operations with decimals.
- Use estimates to check the reasonableness of exact computations.
- Determine when addition, subtraction, multiplication, or division is the appropriate operation to solve a problem.
- Develop conceptual models and understand algorithms for adding, subtracting, multiplying, and dividing decimals.
- Solve real-world problems using arithmetic operations on decimals.
- Write equations or expressions using variables to represent relationships among

real-world situations.	
• Draw models to demonstrate an understanding of problem solving with percents.	

Character Attributes
• Perseverance
• Cooperation
• Courage
• Respect

Technology Competencies
*** All available on CMP3 Dashboard
• Expression Calculator
• Number Line

Develop Teaching and Learning Plan

Teaching Strategies:	Learning Activities:
Use a problem-centered model with teacher-directed mini-lesson • Embed important mathematical ideas within contexts of interesting problems. • Work with small groups of students to build conceptual understanding, fluency and application of key math focus areas. **Use games to develop concepts and practice skills.** **Use student-centered activities and worthwhile math tasks.** • Arrange student seating so that learners can move freely to post, analyze, and discuss their work. **Use a variety of grouping structures.** • Collaborative groups, partners, individuals. • Clearly communicate expectations about group work to students. **Orchestrate class/student to student discourse.** • Focus discussions on important mathematics and student strategies. • Facilitate student-to-student discourse. • Elicit participation from all students over the course of several discussions.	• Determine which operation to use to find a solution using real-world situations. • Develop strategies for using estimation when dealing with decimal numbers using real-world situations. • Express unit rates as decimals to solve problems. • Develop how place value relates to decimal addition and decimal subtraction using Decimal Card Sort. • Write and apply fact families to extend operational relationships to include decimals. • Recognize equivalent expressions for decimal numbers by sorting equivalents on Card Sort. • Apply area models to find the product of any two decimal numbers. • Apply decimal multiplication algorithm to solve problems. • Determine and write fraction forms and long-division forms to calculate and explain division with decimals. • Develop and apply decimal division algorithms to solve problems. • Determine the tax and total cost of an item given the selling price and tax rate using fraction strip models. • Analyze and apply Larry's Lunch Place menu to determine the tip and total cost for a restaurant meal given a meal

	- price and tip rate.
	- Determine the discount and total cost of an item from a given selling price and discount rate.
	- Determine which operation is appropriate to perform when a problem involves decimals and percents.

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	Other Evidence Application that is functional in a classroom context to evaluate student achievement of desired results
Title: Welcome to the School Store Goal: Students will add, subtract, multiply or divide amounts of money involving multi-digit decimals using the standard algorithm to solve problems about cost and profits at a school store. Role: Student/Shopper Audience: Customers of School Store Situation: Calculating totals that include money and tax. Product or Performance: Determining total cost of school store items that include tax. Standards for Success: A scoring rubric is shared with students at the onset of the project.	**Checkpoints** - Investigation Classwork and ACE (Applications, Connections, Extensions) exercises. - Mathematical Reflection Questions at end of each Investigations - Looking Back which can be used as review, helping students to stand back and look at the big ideas and connections in the unit. **Surveys of Knowledge** - Quizzes: individual assessment instruments. - Unit Tests: individual assessment that informs teachers about students' ability to apply, refine, modify, and possibly extend the mathematical knowledge and skills acquired. - Performance Task

Suggested Resources

- Connected Mathematics Project 3 (CMP3) Unit 4, Decimal Ops
- Teaching Student-Centered Mathematics, 6-8 by Van de Walle, et. al
- CT State Department of Education, Mathematics Units of Study, Grade 6

New Milford Public Schools

Committee Member(s): Cortni Muir, Peggy Neal, Tamara Gloster Unit 5: Focus on Algebra	Course/Subject: Mathematics Grade Level: 6 # of Weeks: 5
Identify Desired Results	
Common Core Standards	

Standards of Focus in Unit
- (6.RP.A.3) Use ratio and rate reasoning to solve real-world and mathematical problems, e.g. by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
- (6.NS.C.8) Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distance between points with the same first coordinate or the same second coordinate.
- (6.EE.A.3) Apply the properties of operations to generate equivalent expressions.
- (6.EE.B.7) Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$, and $px = q$ for cases in which p and q and x are all nonnegative rational numbers.
- (6.EE.C.9) Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Additional Standards in Unit
- (6.RP.A.2) Understand the concept of a unit rate a/b associated with a ratio a:b with $b \neq 0$, and use rate language in the context of a ratio relationship
- (6.NS.C.6) Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
- (6.EE.A.1) Write and evaluate numerical expressions involving whole-number exponents.
- (6.EE.A.2) Write, read, and evaluate expressions in which letters stand for numbers.
- (6.EE.A.2b) Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient).
- (6.EE.A.2c) Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
- (6.EE.A.4) Identify when two expressions are equivalent.
- (6.EE.B.5) Understand solving an equation or inequality as a process of

answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

- (6.EE.B.6) Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
- (6.EE.B.8) Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x <$ c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Standards for Mathematical Practices
- MP 1 - Make sense of problems and persevere in solving them.
- **MP 2 - Reason abstractly and quantitatively**.
- **MP 3 - Construct viable arguments and critique the reasoning of others.**
- MP 4 - Model with mathematics.
- **MP5 - Use appropriate tools strategically.**
- MP6 - Attend to precision.
- **MP7 - Look for and make use of structure.**
- MP8 - Look for and express regularity in repeated reasoning.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	Essential Questions Inquiry used to explore generalizations
- In many real-world situations, one variable quantity depends on another. Tables, graphs, and equations are various representations that can be used to better understand the pattern of change between variable quantities. - Not all relationships are linear. Linear relationships have a constant rate of change between variables and are written in the form y=mx, y=b + x, and y=b +mx. - There is more than one way to write an expression to model a real-world situation. Properties of operations allow you to generate equivalent expressions and check equivalence. - Solutions for equations and inequalities can be found by	- How can you construct a graph from a table of data that depicts change over time? How is this pattern of change represented in the graph? - Which representation of data – table, graph, or written notes-seems to better show patterns of change in distance over time, and why? - How do you analyze and compare the relationship between variables given in different representations? - When the relationship between dependent and independent variables is displayed in a graph, what can you learn about the relationships from a rising graph, a level graph, and a falling graph? - When an equation relating two variables involves two or more operations, how do you use the equation to find values of the

examining the table or graph of the equation or by rewriting it as a related equation.	dependent variable from given values of the independent variable?
	• How can you determine if direct proportionality exists or does not exist in rate tables, graphs and equations?
	• How are two different, but equivalent expressions, related for a given situation?
	• How can you represent and find solutions for inequalities?

Expected Performances
What students should know and be able to do

Students will know the following:
- Understand variables and how they are related.
- Understand expressions and equations.

Students will be able to do the following:
- Explore problem situations that involve variables and relationships.
- Represent the pattern of change that relates two variables in words, data tables, graphs, and equations.
- Describe advantages and disadvantages of using words, tables, graphs, and equations to represent patterns of change relating two variables and make connections across those representations.
- Use tables, graphs, and equations to find the value of a variable given the value of the associate variable.
- Write an equation to express the relationship between two variables in one and two operations: y=mx, y=b+x, and y=b+mx.
- Recognize and express direct proportionality relationships with a unit rate (y=mx) and represent those relationships in rate tables and graphs.
- Solve problems that involve variables.
- Use properties of operations, including the Distributive Property and the Order of Operations, to write equivalent expressions for the dependent variables in terms of the independent variable.
- Interpret and evaluate expressions in which letters stand for numbers and apply the Order of Operations as needed.
- Solve linear equations of the forms y=ax, y=b+x, and y=b+ax using numeric guess and check, tables of (x,y) values, and graphs or fact families.
- Write an inequality and associate it with an equation to find solutions and graph the solutions on a number line.

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

*** All available on CMP3 Dashboard
- Number Line
- Coordinate Grapher
- Data and Graphs
- Climbing Monkeys

Develop Teaching and Learning Plan	
Teaching Strategies: **Use a problem-centered model with teacher-directed mini-lesson** • To embed important mathematical ideas within contexts of interesting problems. • To provide time for teachers to work with small groups of students. **Use games to develop concepts and practice skills.** **Use student-centered activities and worthwhile math tasks.** **Use a variety of grouping structures.** • Collaborative groups, partners, individuals. **Orchestrate class discussions.** • Focus discussions on important mathematics and student strategies. • Elicit participation from all students over the course of several discussions. • Facilitate student-to-student discourse.	Learning Activities: • Construct a table of data and graph that depicts change over time using collected Jumping Jack Fitness Test data. • Compare advantages and disadvantages of tables and graphs to represent and describe patterns of change in a variable over time in the setting of Ocean Bike Tours situations. • Calculate the average speed for a trip using a graph and table of time and distance data. • Analyze and compare relationships of variables given in different representations using a table and graph of bike rental prices. • Recognize relationships between independent and dependent variables. • Predict how income and profit are related by plotting data points on coordinate grid. • Interpret trends of graphs by explaining the relationship between the independent and dependent variables. • Write expressions with one operation for real-world situations. • Develop rate tables and graph data to show patterns of change. • Calculate the value of y when the value of x is given. • Write two-variable equations. • Find the value of the dependent variable from given values of the independent variable using substitution and order of operations. • Write equivalent expressions involving variables to describe a real situation. • Develop strategies to solve one-step

	equations using one of the four arithmetic operations. • Represent and find solutions for inequalities.

Assessments	
Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
Title: Selling Scones Goal: Students will model, write, solve, and compare equations to solve problems related to making and selling scones and drinks to help fund a trip for the chorus. Role: Students raising money Audience: Classmates Situation: The students in the chorus will be performing at an amusement park. After the performance, the students will get to go on the rides. The students sell scones at breakfast during the school year to help raise money for the trip. Product or Performance: Write and solve equations to determine appropriate amount of ingredients or number of scones sold. Standards for Success: A scoring rubric is shared with students at the onset of the project.	**Checkpoints** • ACE (Applications, Connections, Extensions) exercises • Mathematical Reflection Questions at end of each Investigations • Looking Back which can be used as review, helping students to stand back and look at the big ideas and connections in the unit. **Surveys of Knowledge** • Check-ups: short, individual assessment instruments (more skill oriented). • Partner Quizzes (optional), extension of ideas from class. • Unit Tests: individual assessment that informs teachers about students' ability to apply, refine, modify, and possibly extend the mathematical knowledge and skills acquired. • Self-Assessment: summarizing the mathematics learned in the unit and the ideas in which they are still struggling. • Performance Task
Suggested Resources	
• Connected Mathematics Project 3 (CMP3) Unit 5, Variables and Patterns • Teaching Student-Centered Mathematics, 6-8 by Van de Walle, et. al • CT State Department of Education, Mathematics Units of Study, Grade 6	

New Milford Public Schools

Committee Member(s): Cortni Muir, Peggy Neal, Tamara Gloster Unit 6: Two and Three-Dimensional Measurement	Course/Subject: Mathematics Grade Level: 6 # of Weeks: 2

Identify Desired Results
Common Core Standards

Standards of Focus in Unit
- (6.EE.C.9) Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.
- (6.G.A.1) Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
- (6.G.A.2) Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Additional Standards in Unit
- (6.G.A.3) Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
- (6.G.A.4) Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
- (6.NS.B.4) Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
- (6.EE.A.2) Write, read, and evaluate expressions in which letters stand for numbers.
- (6.EE.A.3) Apply the properties of operations to generate equivalent expressions.
- (6.EE.A.4) Identify when two expressions are equivalent.
- (6.EE.B.6) Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any

number in a specified set.

Standards for Mathematical Practices

- **MP 1 - Make sense of problems and persevere in solving them.**
- MP 2 - Reason abstractly and quantitatively.
- **MP 3 - Construct viable arguments and critique the reasoning of others.**
- **MP 4 - Model with mathematics**.
- MP5 - Use appropriate tools strategically.
- MP6 - Attend to precision.
- MP7 - Look for and make use of structure.
  MP8 - Look for and express regularity in repeated reasoning.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	Essential Questions Inquiry used to explore generalizations
- Polygons and irregular figures can be decomposed into triangles and rectangles to find the area of the figures. - A fixed number of area units can be enclosed by many different perimeters, and a fixed number of perimeter units can enclose many different areas. - Formulas for the area and perimeter of a rectangle can help you solve problems by reasoning about the relationship between values. - The volume of a prism can be thought of as multiplying a base layer of unit cubes by the number of layers needed to fit the prism. - Surface areas of three-dimensional solids can be found by adding the area of the faces.	- What are the formulas for finding the area and perimeter of a rectangle? Explain why they work. - For a fixed area, what are the shape and perimeter of the rectangles with the greatest and least perimeters? - Does it make any different which side is used as the base when finding the area of a triangle? - What is a strategy for finding the area of a parallelogram? Explain why the strategy works. - Under what conditions will two or more parallelograms have the same area? Do these parallelograms have the same shape? Explain. - What is a strategy for finding the surface area or volume of a rectangular prism? Explain why the strategy works. - What is a strategy for finding the surface area of a 3D object?

Expected Performances
What students should know and be able to do

Students will know the following:
- Understand that perimeter is a measure of linear units needed to surround a two-dimensional shape and that area is a measure of square units needed to cover a two-dimensional shape.
- Understand that the linear measurements of the base, height, and slanted height of parallelograms and triangles are essential to finding the area and perimeter of these shapes.
- Understand that the surface area of a three-dimensional shape is the sum of the

areas of each two-dimensional surface of the shape and that the volume of a rectangular prism is a measure in cubic units of the capacity of the prism.

Students will be able to do the following:
- Deepen the understanding of area and perimeter of rectangular and nonrectangular shapes.
- Analyze meaning, develop, and use formulas for calculating area and perimeter.
- Explore relationships between perimeter and area, including that one can vary considerably while the other stays fixed.
- Analyze how the area of a triangle and the area of a parallelogram are related to each other and to the area of a rectangle.
- Know that the choice of base of a triangle (or parallelogram) is arbitrary but that the choice of the base determines the height.
- Develop formulas and strategies, stated in words or symbols, for finding the area and perimeter of triangles and parallelograms.
- Solve problems involving area and perimeter of parallelograms, triangles, and polygons.
- Extend the understanding of the volume of rectangular prisms (with both whole and fractional side lengths), and relate volume to filling a three-dimensional figure.
- Relate finding area of two-dimensional shapes to finding the surface area of three-dimensional objects.
- Develop strategies for finding the surface area of three-dimensional objects made from rectangles and triangles.

Character Attributes
- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies
    *** All available on CMP3 Dashboard
- Areas and Perimeters of Shapes and Images
- Virtual Box

Develop Teaching and Learning Plan

Teaching Strategies:	Learning Activities:

Use a problem-centered model with teacher-directed mini-lesson
 	
  • to embed important mathematical ideas within contexts of interesting problems.
  • to provide time for teachers to work with small groups of students.
 	
Use games to develop concepts and practice skills.
Use student-centered activities and
	• Design Bumper-Car Rides to develop formulas for area and perimeter.
	• Design Storm Shelters to compare shape and perimeter of rectangles with a fixed area.
	• Design a fenced area with a fixed perimeter to compare shape and area differences.
	• Analyze triangles on a grid to develop a formula for finding the area of a

	triangle.
worthwhile math tasks. **Use a variety of grouping structures.** • Collaborative groups, partners, individuals. **Orchestrate class discussions.** • Focus discussions on important mathematics and student strategies. • Elicit participation from all students over the course of several discussions. • Facilitate student-to-student discourse.	• Observe and analyze congruent triangles to determine base and height relationships for finding area of a triangle. • Compare triangles with the same height and base to develop understanding of congruent area. • Analyze parallelograms on a grid to develop a strategy for finding area of a parallelogram. • Compare parallelograms that have the same base and height to develop understandings of equivalent area. • Design parallelograms with area constraints. • Fold rectangular nets and determine surface area. • Fill boxes with centimeter cubes to determine volume. • Design gift boxes to develop understanding of surface area.

Assessments	
Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
N/A	**Checkpoints** • ACE (Applications, Connections, Extensions) exercises • Mathematical Reflection Questions at end of each Investigations • Looking Back which can be used as review, helping students to stand back and look at the big ideas and connections in the unit. **Surveys of Knowledge** • Check-ups: short, individual assessment instruments (more skill oriented). • Partner Quizzes (optional), extension of ideas from class. • Unit Tests: individual assessment that informs teachers about students' ability

	to apply, refine, modify, and possibly extend the mathematical knowledge and skills acquired. • Self-Assessment: summarizing the mathematics learned in the unit and the ideas in which they are still struggling.

Suggested Resources

- Connected Mathematics Project 3 (CMP3) Unit 6, Covering and Surrounding
- Teaching Student-Centered Mathematics, 6-8 by Van de Walle, et. Al
- CT State Department of Education, Mathematics Units of Study, Grade 6

New Milford Public Schools

Committee Member(s): Cortni Muir, Peggy Neal, Tamara Gloster Unit 7: Statistics and Data Analysis	Course/Subject: Mathematics Grade Level: 6 # of Weeks: 3
Identify Desired Results	
Common Core Standards	

Standards of Focus in Unit
- (6.SP.A.1) Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
- (6.SP.A.2) Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
- (6.SP.A.3) Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.
- (6.SP.B.4) Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
- (6.SP.B.5) Summarize numerical data sets in relation to their context.

Additional Standards in Unit
- (6.RP.A.3) Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
- (6.NS.C.6) Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
- (6.NS.C.7) Understand ordering and absolute value of rational numbers.

Standards for Mathematical Practices
- **MP 1 - Make sense of problems and persevere in solving them.**
- **MP 2 - Reason abstractly and quantitatively.**
- **MP 3 - Construct viable arguments and critique the reasoning of others.**
- MP 4 - Model with mathematics.
- MP5 - Use appropriate tools strategically.
- MP6 - Attend to precision.
- MP7 - Look for and make use of structure.
- MP8 - Look for and express regularity in repeated reasoning.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations

- The answers to a statistical question are called data. Data can be either numerical or categorical.
- There are several ways to try to say what is typical of a set of data; in each case a single number, called a measure of center, summarizes the data. Because various measures of center are calculated differently, they respond differently to changes in the data or to unexpected data values.
- The variability of a set of data can be measured, interpreted, and compared with the variability of other data sets. Measures of variability tell you how spread out the data are in relation to each other or to the center.
- Finding measures of center or variability and graphing data are useful for summarizing the information in a variable data set. Visual representations of a data set can help you to interpret the measures of center and variability, and relate these to the overall shape of the representation.

- What are data? How do you represent data using a frequency table or a line plot? How can you compare two distributions of data?
- What are measures of central tendency and variability (or spread)? How do you compute and use mode and range?
- How do you identify and use the median? How can you compare two distributions of data using the median?
- How do you interpret, compute, and use the mean?
- How do you distinguish different types of data? What statistics are used with different types of data?
- What information does the interquartile range provide about how data vary in a distribution?
- What information does the mean absolute deviation provide about how data vary in a distribution?
- How can you use a histogram to help you interpret data?
- How can you interpret data using a box-and-whisker plot?

Expected Performances
What students should know and be able to do

Students will know the following:
- Understand and use the process of statistical investigation.
- Distinguish data and data types.
- Display data with multiple representations.
- Recognize that a single number may be used to characterize the center of a distribution of data and the degree of variability (or spread).

Students will be able to do the following:
- Ask questions, collect and analyze data, and interpret data to answer questions.
- Describe data with respect to its shape, center, and variability or spread.
- Recognize that data consists of counts or measurements of a variable, or an attribute: these observations comprise a distribution of data values.
- Distinguish between categorical data and numerical data, and identify which graphs and statistics can be used to represent each kind of data.
- Organize and represent data using tables, dot plots, line plots, ordered-value bar graphs, frequency bar graphs, histograms, and box-and-whisker plots.
- Recognize that a graph shows the overall shape of a distribution, whether the

data values are symmetrical around a central value, and whether the graph contains any unusual characteristics such as gaps, clusters, or outliers.
- Distinguish between and compute measures of central tendency (mean, median, and mode) and measures of spread (range, interquartile range (IQR), and mean absolute deviation (MAD).
- Identify how the median and mean respond to changes in the data values of a distribution.
- Use measures of center and spread to compare data distributions.

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

   *** All available on CMP3 Dashboard
- Expression Calculator
- Data and Graphs

Develop Teaching and Learning Plan

Teaching Strategies:	Learning Activities:

Use a problem-centered model with teacher-directed mini-lesson
  • to embed important mathematical ideas within contexts of interesting problems.
  • to provide time for teachers to work with small groups of students.
Use games to develop concepts and practice skills.
Use student-centered activities and worthwhile math tasks.
Use a variety of grouping structures.
  • Collaborative groups, partners, individuals.
Orchestrate class discussions.
  • Focus discussions on important mathematics and student strategies.
  • Elicit participation from all students over the course of several discussions.
  • Facilitate student-to-student discourse.
	• Anticipate and recognize how data using selected measures of center (median and mode) and variability or spread (range).
	• Develop the concept of *mean* using the average number of people in students' households
	• Even out the distribution at a point (the mean) by using cubes, ordered-value bar graphs, and line plots.
	• Develop an algorithm for finding the mean.
	• Distinguish between categorical data and numerical data.
	• Make connections between data types and choice of measures of center and variability (or spread).
	• Estimate cereal portions for two different cereals to determine interquartile range (IQR) and mean absolute deviation (MAD).
	• Apply IQR as a tool to analyze a database of 70 cereals and their sugar content.
	• Describe the differences in variation in wait times at an amusement park using

	MAD.
	• Compare data sets using measures of center and spread.
	• Compare two or more distributions by looking at outliers, how data vary, and which measures of center are appropriate to use as comparisons.
	• Construct and analyze histograms and box-and-whisker.

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	Other Evidence Application that is functional in a classroom context to evaluate student achievement of desired results
N/A	**Checkpoints** • ACE (Applications, Connections, Extensions) exercises • Mathematical Reflection Questions at end of each Investigations • Looking Back which can be used as review, helping students to stand back and look at the big ideas and connections in the unit. **Surveys of Knowledge** • Check-ups: short, individual assessment instruments (more skill oriented). • Partner Quizzes (optional), extension of ideas from class. • Unit Tests: individual assessment that informs teachers about students' ability to apply, refine, modify, and possibly extend the mathematical knowledge and skills acquired. • Self-Assessment: summarizing the mathematics learned in the unit and the ideas in which they are still struggling.

Suggested Resources

- Connected Mathematics Project 3 (CMP3) Unit 7, Data About Us
- Teaching Student-Centered Mathematics, 6-8 by Van de Walle, et. al
- CT State Department of Education, Mathematics Units of Study, Grade 6