



Charyl Stockwell Academy

Middle School Benchmarks and Grade Level Content Expectations

Mathematics Curriculum with Focal Points

(Benchmarks are in normal font and GLCES are in italics)

Year One Focal Points, Benchmarks, and GLCEs:

Number and Operations: Developing an understanding of and fluency with multiplication and division of fractions and decimals.

- Expand their understanding of rational numbers and represent rational numbers in fraction and decimal form
 - *Understand that rational numbers are quotients of integers (non-zero denominators), e.g., a rational number is either a fraction or a negative fraction*

Resources:

Holt; Coarse 2 (2005); Lesson 2-9
Connected Math; Accentuate the Negative
Math Advantage; Red book pg. 469
Accumulation of Teacher Ideas and Activities;

- Recognize equivalent representations of a number especially fractions, decimals, and percents and translate freely among the representations
 - *Calculate part of a number given the percentage and the number*

Resources:

Holt; Coarse 2 (2005); Lesson 2-10
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Compute with rational numbers using mental computation
 - *Add, subtract, multiply, and divide positive and negative rational numbers fluently*

Resources:

Holt; Coarse 2 (2005); Chapter 2, Chapter 3
Connected Math; Bits and pieces II
Math Advantage; Red book pg. 132 & 150, Blue book pg. 94
Accumulation of Teacher Ideas and Activities;

- Estimate size of fractions comparing to 0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Estimate fractional quantities when adding, subtracting, multiplying, and dividing

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Model and solve mathematical problems concerning fractions and decimals

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Perform the four operations with fractions, mixed numerals, decimals
 - *Understand division of fractions as the inverse of multiplication*
 - *Solve for the unknown in equations*
 - *Multiply and divide any two fractions, including mixed numbers, fluently*
 - *Understand that a fraction or a negative fraction is a quotient of two integers, e.g. ___ is -8 divided by 3*

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math; (2) Bits and pieces I, (4) Accentuate the Neg. Inv. 1-2
Math Advantage; (1) Red book pg. 139, (2) Blue book pg. 89, (3) Purple book pg. 332
Accumulation of Teacher Ideas and Activities;

- Express numerical comparisons as ratios, rates, and percents
 - *Calculate rates of change including speed*

- *Find equivalent ratios by scaling up or scaling down*

Resources:

Holt; Coarse 2 (2005); Lesson 5-2, 5-4
Connected Math; Comparing and scaling
Math Advantage;
Accumulation of Teacher Ideas and Activities;

Continued Instruction in Numbers and Operations (multiplication and division of fractions and decimals):

- *Understand that in decimal form, rational numbers either terminate or eventually repeat, and that calculators truncate or round repeating decimals*
- *Know fraction forms of common repeating decimals, e.g., $0.1 = \frac{1}{10}$; $0.3 = \frac{3}{10}$*
- *Understand percent increase and percent decrease in both sum and product form, e.g. 3% increase of a quantity x is $x + .03x = 1.03x$*
- *Estimate results of computations with rational numbers*
- *For applied situations, estimate the answers to calculations involving operations with rational numbers*
- *Given an applied situation involving dividing fractions, write a mathematical statement to represent the situation*

Resources:

Holt; Coarse 2 (2005); Lesson 3-12
Connected Math; (1) Bits and pieces I, Bits and pieces II
Math Advantage; (1) Red book pg. 469, Blue book pg. 372 (2) Purple book pg. 334
Accumulation of Teacher Ideas and Activities;

Number and Operations: Connecting ratio and rate to multiplication and division.

- Be able to compare and order rational numbers using relations of equality and inequality

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Give geometric representations of rational numbers or place rational numbers on a number line
 - *Order positive and negative rational numbers and place them on the number line*

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math; Bits and pieces I
Math Advantage; Red book pg. 474, Purple book pg. 44
Accumulation of Teacher Ideas and Activities;

- Multiply and divide decimals up to two places where the result is a terminating decimal

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Using models or proportions, find the missing numerator or denominator to create equivalent fractions

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

Continued Instruction in Numbers and Operations: Connecting ratio and rate to multiplication and division.

- Select appropriate representations for rational numbers in order to simplify and solve problems
 - *Represent rational numbers as fractions or terminating decimals when possible, and translate between these representations*

Resources:

Holt; Coarse 2 (2005); Lesson 2-9
Connected Math; Bits and pieces I
Math Advantage; Red book pg. 469, Blue book pg. 372
Accumulation of Teacher Ideas and Activities;

- Apply understanding of ratio, unit rates, and proportion in solving problems

- *Solve simple proportion problems using such methods as unit rate, scaling, finding equivalent fractions, and solving the proportion equation $a/b = c/d$; know how to see patterns about proportional situations in tables*
- *Solve problems involving ratio units such as mile per hour, dollars per pound, or persons per square mile*

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Explore everyday uses of ratios and proportions using a graphing calculator
 - *Calculate weighted averages such as course grades, consumer price indices, and sports ratings*

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

Algebra: Writing, interpreting, and using mathematical expressions and equations.

- Describe the properties of operations with rational numbers including integers(closure, associative, commutative, and distributive); give examples of how they use those properties

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Read and write algebraic expressions; develop original examples expressed verbally and algebraically; simplify expressions; and translate between verbal and algebraic expressions



- *Use letters, with units, to represent quantities in a variety of contexts, e.g. y lb, k minutes*
- *Distinguish between an algebraic expression and an equation*
- *Use standard conventions for writing algebraic expressions, e.g. $2x + 1$*
- *Represent information given in words using algebraic expressions and equations*

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math; (2) and (3) Say it with Symbols
Math Advantage; (1) Blue book pg. 124 and 143, Orange book pg. 98, (2) Blue book pg. 124 and 143
(3) Blue book 163
Accumulation of Teacher Ideas and Activities;

- Represent and record patterns and algebraic concepts in a variety of ways including tables, charts and graphs, and translate between various representations
 - *Plot ordered pairs of integers and use ordered pairs to identify points in all four quadrants of the coordinate plane*

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

Symbolic Expressions and Computation

- Compute with integers, rational numbers, and simple algebraic expressions using mental computation, estimation, calculators, and paper-pencil; explain what they are doing and how they know which operations to perform in a given situation

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Efficiently and accurately apply order of operations with integers, rational numbers, and simple algebraic expressions in solving problems

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

□

Continued Instruction for Algebra

- Represent algebraic concepts with geometric models (algebra tiles), and physical models (balance beam, tables, and graphs) and write algebraic expressions to correspond to the multiple representations
 - *Understand that relationships between quantities can be suggested by graphs and tables*

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math; Moving Straight Ahead
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Explore, describe, analyze, and generalize patterns and relationships arising in a variety of contexts and express them in general terms

Resources:

Holt; Coarse 2 (2005); Lesson
Connected Math;
Math Advantage;
Accumulation of Teacher Ideas and Activities;

Year Two Focal Points, Benchmarks, and GLCEs:

Number and Operations and Algebra and Geometry: Developing an understanding of and applying proportionality, including similarity.

- *Solve word problems involving percentages in such contexts as sales taxes and tips*
- *Solve problems involving percent increases and decreases*
- *Solve problems involving compounded interest or multiple discounts*

Resources:

Holt; Coarse 3 (2007); Lessons 6-5, 6-6, and 6-7,
Connected Math; Bits and Pieces II (Gr. 6), Growing, Growing, Growing (Gr. 8)
Math Advantage; Purple Book Chapter 27 and Orange Book Chapter 15
Accumulation of Teacher Ideas and Activities;

- *Convert ratio quantities between different systems of units such as feet per second to miles per hour*

Resources:

Holt; Coarse 3 (2007); Lesson 5-2
Connected Math; How Likely Is It? (Gr. 6), Comparing and Scaling (Gr. 7), Data Around Us (Gr. 7),
Stretching and Shrinking (Gr. 7), Moving Straight Ahead (Gr. 7)
Math Advantage; Purple Book Chapter 14 and Orange Book Chapter 2
Accumulation of Teacher Ideas and Activities;

- *Graph and write equations for linear functions of the form $y = mx$, and solve related problems*

Resources:

Holt; Coarse 3 (2007); Lesson 12-1
Connected Math; Variables and Patterns (Gr. 7), Moving Straight Ahead (Gr. 7)
Math Advantage; Purple Book Chapter 9 and Orange Book Chapter 5
Accumulation of Teacher Ideas and Activities;

- *Understand and use directly proportional relationships for the form $y = mx$, and distinguish from linear relationship of the form $y = mx + b$, b non-zero; understand that in a directly proportional relationship between two quantities one quantity is a constant multiple of the other quantity*
- *Represent linear functions in the form $y = x + b$, $Y = mx$, and $y = mx + b$, and graph, interpreting slope and Y-intercept*
- Solve linear equations based upon ratios and rates
- Use linear equations to solve practical problems
- Solve linear equations, equalities and inequalities using algebraic and geometric methods and use the context of the problem to interpret and explain their solutions
 - *Calculate slope from the graph of a linear function as the ratio of “rise/run” for a pair of points on the graph; and express the answer as a fraction and a decimal; understand that linear functions have slope that is a constant rate of change*
 - *Know that the solution to a linear equation corresponds to the point at which its graph crosses the x-axis*
 - *Given a directly proportional or linear situation, graph and interpret the slope and intercepts in terms of the original situation; evaluate $y = kx$ for specific x values, given k (e.g., base cost plus cost per unit)*
 - *For directly proportional or linear situations, solve applied problems using graphs and equations*

Resources:

Holt; Coarse 3 (2007); Chapter 12
 Connected Math; Variables and Patterns (Gr. 7), Moving Straight Ahead (Gr. 7)
 Math Advantage; Orange Book Chapter 24
 Accumulation of Teacher Ideas and Activities;

- Generalize about the common properties of similar and congruent shapes and verify the generalizations informally
 - *Understand and use the fact that when two triangles are similar with scale factor of r , their areas are related by a factor of r^2*
 - *Understand that for polygons, congruence means corresponding sides and angles have equal measures*
 - *Understand that in similar polygons, corresponding angles are congruent and the ratios of corresponding sides are equal; understand the concepts of similar figures and scale factor*
- Use shapes, shape properties, and shape relationships to describe similarity and congruence in the physical world and to solve related problems
 - *Solve problems about similar figures and scale drawings*

Resources:

Holt; Coarse 3 (2007); Lessons; 5-5, 5-6, 5-7 and 5-8.
 Connected Math; Filling and Wrapping (Gr. 7), Stretching and Shrinking (Gr. 7)
 Math Advantage; Purple Book Chapter 10 and Orange Book Chapter 12
 Accumulation of Teacher Ideas and Activities;

Continued Instruction for Numbers and Operations and Algebra and Geometry:

- Change numerical data to percents or rates
 - *Recognize inversely proportional relationships in contextual situations; know that quantities are inversely, proportional if their product is constant (e.g., the length and width of a rectangle with fixed area, and that an inversely proportional relationship is of the form $y = k/x$ is not a line), know its shape; and know that it crosses neither the x nor the y-axis*

Resources:

Holt; Coarse 3 (2005); Lessons 5-1, 5-2, 5-3 and 5-4.
Connected Math; Stretching and Shrinking (Gr. 7), Comparing and Scaling (Gr. 7)
Math Advantage; Purple Book Chapter 16 and Orange Book Chapter 14
Accumulation of Teacher Ideas and Activities;

Measurement and Geometry and Algebra: Developing an understanding of and using formulas to determine surface areas and volumes of three-dimensional shapes.

- Distinguish among shapes and differentiate between examples of shapes based on their properties

Resources:

Holt; Coarse 3 (2007); Lesson 7-4.
Connected Math; Filling and Wrapping (Gr. 7)
Math Advantage; Red Book Chapter ?
Accumulation of Teacher Ideas and Activities;

- Classify triangles by angles and sides
 - *Show that two triangles are similar using the criteria: corresponding angles are congruent (AAA), the ratios of two pairs of corresponding sides are equal and the included angles are congruent (SAS), ratios of all pairs of corresponding sides are equal (SSS); use these criteria to solve problems and to justify arguments*

Resources:

Holt; Coarse 3 (2007)
Connected Math;
Math Advantage; Purple Book Pages 226-227 and 239-231 and Orange Book Pages 394-397
Accumulation of Teacher Ideas and Activities;

- Recognize examples of bilateral and rotational symmetry

Resources:

Holt; Coarse 3 (2007); Pages 446-447.
Connected Math; Kaleidoscopes, Hubcaps, and Mirrors (Gr. 8)
Math Advantage; Purple Book Chapter 17 and Orange Book Chapter 21
Accumulation of Teacher Ideas and Activities;

- Describe translations, reflections, rotations, dilations using the language of transformations and employ transformations to verify congruence of figures
 - *Understand and use simple compositions of basic rigid transformations, e.g., a translation followed by a reflection*
 - *Understand the definition of a dilation from a point in the plane, and relate it to the definition of similar polygons*
 - *Understand and use reflective and rotational symmetries of two-dimensional shapes, and relate them to transformations to solve problems*
- Explore ways to combine, dissect, and transform shapes

Resources:

Holt; Coarse 3 (2007); Lesson 7-7 and Lab 7-7.
 Connected Math; Stretching and Shrinking (Gr. 7), Kaleidoscopes, Hubcaps, and Mirrors (Gr. 8)
 Math Advantage; Purple Book Chapter 17 and Orange Book Chapter 21
 Accumulation of Teacher Ideas and Activities;

- Measure objects using standard units in both the metric and customary systems

Resources:

Holt; Coarse 3 (2007); Pages 831, 837 and 843.
 Connected Math;
 Math Advantage; Red Book Chapter ?
 Accumulation of Teacher Ideas and Activities;

- Find the perimeters of various polygons and the circumferences of circles
- Find the areas of various triangles, quadrilaterals, and circles
 - *Understand the concept of surface area, and find the surface area of prisms, cones, spheres, pyramids, and cylinders*

Resources:

Holt; Coarse 3 (2007); Lessons 8-1, 8-2, 8-3 and 8-7, 8-8, 8-9.
 Connected Math; Say It with Symbols (Gr. 8), Covering and Surrounding (Gr. 6), Filling and Wrapping (Gr. 7), Stretching and Shrinking (Gr. 7)
 Math Advantage; Purple Book Chapter 24 and Orange Book Lesson 27-1
 Accumulation of Teacher Ideas and Activities;

- Measure volumes of three-dimensional objects
 - *Know the volume formulas for generalized cylinders ((area of base) x height), generalized cones and pyramids (___ (area of base) x height) and spheres (___ (radius)³) and apply them to solve problems*

Resources:

Holt; Coarse 3 (2007); Lesson 8-4, 8-5 and 8-6.
 Connected Math; Filling and Wrapping Gr. 7), Frogs Fleas, and Painted Cubes (Gr. 8)
 Math Advantage; Purple Book Chapter 25 and Orange Book Chapter 26
 Accumulation of Teacher Ideas and Activities;

- Identify the dimensions to be measured and select the appropriate unit of measurement for length, area, and volume

- *Convert between basic units of measurement within a single measurement system*
- *Compute volume and surface area of cubes and rectangular prisms given the lengths of their sides using formulas*
- *Understand the definition of a circle; know and use the formulas for circumference and area of a circle to solve problems*
- *Find area and perimeter of complex figures by sub-dividing them into basic shapes (quadrilaterals, triangles, circles)*

Resources:

Holt; Coarse 3 (2007); Lesson 8-10 and various Labs and Resources throughout Chapter 8.
 Connected Math; ; Say It with Symbols (Gr. 8), Covering and Surrounding (Gr. 6), Filling and Wrapping (Gr. 7), Stretching and Shrinking (Gr. 7), Frogs Fleas, and Painted Cubes (Gr. 8)
 Math Advantage; Purple Book Chapter 25 and Orange Book Chapter 26
 Accumulation of Teacher Ideas and Activities;

- Use appropriate tools to measure angles in degrees

Resources:

Holt; Coarse 3 (2007); Page 832
 Connected Math; Stretching and Shrinking (Gr. 7)
 Math Advantage; Purple Book Chapter 11 and Orange Book Chapter 20
 Accumulation of Teacher Ideas and Activities;

- Classify angles

Resources:

Holt; Coarse 3 (2005); Page 325
 Connected Math; Shapes and Designs (Gr. 6), Stretching and Shrinking (Gr. 7)
 Math Advantage; Red Book Chapter ?,
 Accumulation of Teacher Ideas and Activities;

Continued Instruction in Measurement, Geometry and Algebra:

- *Understand and solve derived quantities such as density, velocity, and weighted averages*

Resources:

Holt; Coarse 3 (2007);
 Connected Math;
 Math Advantage; Purple Book Page 375 and Orange Book Page 30
 Accumulation of Teacher Ideas and Activities;

- Sketch and draw two- and three-dimensional shapes

- *Use a ruler and other tools to draw squares, rectangles, triangles and parallelograms with specified dimensions*
- *Sketch a variety of two-dimensional representations of three-dimensional solids including orthogonal views (top, front, and side), picture views (projective or isometric), and nets; use such two-dimensional representations to help solve problems*

Resources:

Holt; Coarse 3 (2007); Lesson 8-4, Lab 8-4, Lab 8-6, and Lab 8-7
 Connected Math; Filling and Wrapping (Gr. 7)
 Math Advantage; Purple Book Chapter 12 and Orange Book Chapter 22
 Accumulation of Teacher Ideas and Activities;

- Use position, direction, and orientation to locate and describe three-dimensional objects
- Construct two and three dimensional shapes using coordinates, technology, sketching and drawing
 - *Use paper folding to perform basic geometric constructions of perpendicular lines, midpoints of line segments and angle bisectors; justify*
- Decide if an estimate or a measurement is “close enough”
 - *Solve applied problems involving areas of triangles, quadrilaterals, and circles*

Resources:

Holt; Coarse 3 (2007); Various Resources and Activities throughout Chapter 8.
 Connected Math; Filling and Wrapping (Gr. 7)
 Math Advantage; Purple Book Chapter 12 and Orange Book Chapter 22 and 27
 Accumulation of Teacher Ideas and Activities;

- Use proportional reasoning and indirect measurements to draw inferences about shapes

Resources:

Holt; Coarse 3 (2007); Lesson 5-7.
 Connected Math; Stretching and Shrinking (Gr. 7)
 Math Advantage; Purple Book Pages 341-343 and Orange Book Chapter 28
 Accumulation of Teacher Ideas and Activities;

- Estimate and measure angles with a specified degree of accuracy and measure lengths to determine congruence

Resources:

Holt; Coarse 3 (2007); Lab 7-2.
 Connected Math; Stretching and Shrinking (Gr. 7)
 Math Advantage; Purple Book Chapter 10 and Orange Book Chapter 20
 Accumulation of Teacher Ideas and Activities;

- Interpret measurements and recognize that two objects may have the same measure on one attribute but not necessarily on another

Resources:

Holt; Coarse 3 (2007); Lesson and Lab 5-5.
Connected Math; Stretching and Shrinking (Gr. 7)
Math Advantage; Purple Book Chapter 16 and Orange Book Chapter 12
Accumulation of Teacher Ideas and Activities;

- Use proportional reasoning and indirect measurements to draw inferences about similarity and congruence

Resources:

Holt; Coarse 3 (2007); Lesson 5-7.
Connected Math; Stretching and Shrinking (Gr. 7)
Math Advantage; Purple Book Chapter 17 and Orange Book Chapter 13
Accumulation of Teacher Ideas and Activities;

- Construct similar and congruent shapes using technology or measurement

Resources:

Holt; Coarse 3 (2007); Lab 5-5 and Lab 5-6.
Connected Math; Stretching and Shrinking (Gr. 7), Filling and Wrapping (Gr. 7)
Math Advantage; Purple Book Chapter 11 and Orange Book Chapter 20
Accumulation of Teacher Ideas and Activities;

- *Draw patterns of faces for a cube and rectangular prism that, when cut, will cover the solid exactly (nets)*

Resources:

Holt; Coarse 3 (2007); Labs 8-4 and 8-7.
Connected Math; Stretching and Shrinking (Gr. 7), Filling and Wrapping (Gr. 7)
Math Advantage; Purple Book Pages 243-245, 348, 512-513 and Orange Book Pages 184-187, 426-428
Accumulation of Teacher Ideas and Activities;

- Apply measurement to describe the practical world and to solve problems

Resources:

Holt; Coarse 3 (2007); The development of measurement skills and concepts is a central focus of this course and is found throughout this book.
Connected Math; Stretching and Shrinking (Gr. 7), Filling and Wrapping (Gr. 7)
Math Advantage; Throughout Geometry Chapters
Accumulation of Teacher Ideas and Activities;

Number and Operations and Algebra: Developing an understanding of operations on all rational numbers and solving linear equations.

Integers:

- Develop an understanding of integers and their properties: the additive inverse property of integers and rational numbers
 - *Understand meanings of zero and negative integer exponents*
 - *Understand integer subtraction as the inverse of integer addition*
 - *Locate negative integers on the number line; know that numbers and their negatives add to 0, and are on opposite sides and at equal distance from 0*
 - *Understand that 0 is an integer that is neither negative nor positive*
 - *Know that the absolute value of a number is the value of the number, ignoring the sign, or is the distance of the number from 0*
 - *Understand that irrational numbers are those that cannot be expressed as the quotient of two integers, and cannot be represented by terminating or repeating decimals; approximate the position of familiar irrational numbers on the number line*
- Compare and order integers
- Compute with integers: use mental computation, estimation, calculators, and paper and pencil; explain what they are doing and how they know which operations to perform in a given situation

Resources:

Holt; Coarse 3 (2007); Lessons 1-3, 1-4, 1-5 and 1-6.
Connected Math; Accentuate the Negative (Gr. 7)
Math Advantage; Purple Book Chapter 5 and Orange Book Chapter 3
Accumulation of Teacher Ideas and Activities;

- Primes, Composites, Squares, Factorization, Powers
- Organize factors in charts based on prime factorization
- Identify and represent prime, composite, and square numbers in factored form

Resources:

Holt; Coarse 3 (2007); Pages 823 and 824. Game time pages 508-509.
Connected Math; Prime Time (Gr. 6)
Math Advantage; Purple Book Chapter 1 and Orange Book Chapter 1
Accumulation of Teacher Ideas and Activities;

- Demonstrate and explain the meaning of powers and roots of numbers and use calculators to compute powers and square roots
 - *Understand the concept of square root of a number and its connection to the square whose area is the number; understand the meaning of a cube root and its connection to the volume of a cube*

- *Find square roots of perfect squares and approximate the square roots of non-perfect squares by locating between consecutive integers, e.g., is between 11 and 12*

Resources:

Holt; Coarse 3 (2007); Lessons 4-3, 4-4, 4-5 and 4-6.
 Connected Math; Looking for Pythagoras (Gr. 8)
 Math Advantage; Purple Book Chapter 2 and Orange Book Chapter 1
 Accumulation of Teacher Ideas and Activities;

- Extend their understanding of numeration systems to include decimal numeration, scientific numeration, and non-decimal numeration
 - *Simplify expressions of the first degree by combining like terms, and evaluate using specific values*
- Represent events by translating statements of them into algebraic expressions and solving them

Resources:

Holt; Coarse 3 (2007); Lessons 1-1 and 1-2.
 Connected Math; Stretching and Shrinking (Gr. 7), Variables and Patterns (Gr. 7), Moving Straight Ahead (Gr. 7)
 Math Advantage; Purple Book Chapter 6 and Orange Book Chapter 5
 Accumulation of Teacher Ideas and Activities;

- *Relate simple linear equations with integer coefficients to particular contexts, and solve*

Resources:

Holt; Coarse 3 (2007); Lessons 2-7 and 2-8.
 Connected Math; Variables and Patterns (Gr. 7), Moving Straight Ahead (Gr. 7)
 Math Advantage; Purple Book Chapter 9 and Orange Book Chapter 8
 Accumulation of Teacher Ideas and Activities;

- *Understand and use basic properties of real numbers: additive and multiplicative identities, additive and multiplicative inverses, commutative, associative, and the distributive property of multiplication over addition*

Resources:

Holt; Coarse 3 (2007); Page 829.
 Connected Math; Frogs, Fleas, and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8)
 Math Advantage; Purple Book Lessons 5-4, 6-3, 8-2 and Orange Book Pages 108, 135-136, 141-142
 Accumulation of Teacher Ideas and Activities;

- *Understand that adding or subtracting the same number to both sides of an equation creates a new equation that has the same solution*
- *Understand that multiplying or dividing both sides of an equation by the same non-zero number creates a new equation that has the same solutions*

Resources:

Holt; Coarse 3 (2007); Lessons 1-7 and 1-8.
Connected Math; Variables and Patterns (Gr. 7), Moving Straight Ahead (Gr. 7)
Math Advantage; Purple Book Chapters 7-8 and Orange Book Chapters 6-7
Accumulation of Teacher Ideas and Activities;

- Efficiently and accurately apply **order of operations** with integers, rational numbers, and simple algebraic expressions using mental computation, estimation, calculators, and paper/pencil; explain what they are doing and how they know which operations to perform in a given situation

Resources:

Holt; Coarse 3 (2007); Pages 6 and 828.
Connected Math; Say It with Symbols (Gr. 8)
Math Advantage; Purple Book Pages 73-75, 126 and Orange Book Pages 67, 88-87, 100
Accumulation of Teacher Ideas and Activities;

Continued Instruction in Numbers and Operations and Algebra:

- *Understand and use integer exponents, excluding powers of negative numbers; express number in scientific notation*

Resources:

Holt; Coarse 3 (2007); Lesson and Lab 4-4.
Connected Math; Accentuate the Negative (Gr. 7), Say It with Symbols (Gr. 8)
Math Advantage; Purple Book Chapter 5 and Orange Book Chapter 3
Accumulation of Teacher Ideas and Activities;

- Use manipulatives and diagrams to model operations and their inverses with integers and relate the models to their symbolic expressions

Resources:

Holt; Coarse 3 (2007); Lab 1-7.
Connected Math; Accentuate the Negative (Gr. 7), Say It with Symbols (Gr. 8)
Math Advantage; Purple Book Chapter 5 and Orange Book Chapter 3
Accumulation of Teacher Ideas and Activities;

- Select appropriate representations for integers in order to simplify and solve problems
- Efficiently and accurately apply operations with integers in problem solving situations
 - *Add, subtract, multiply, and divide both positive and negative integers using multiple representations or models; solve problems*

- *Estimate and solve problems finding exact square and cube roots using calculators*

Resources:

Holt; Coarse 3 (2007); Lessons, Labs and Activities throughout Chapter 1.
Connected Math; Accentuate the Negative (Gr. 7), Say It with Symbols (Gr. 8)
Math Advantage; Purple Book Chapter 5 and Orange Book Chapter 3
Accumulation of Teacher Ideas and Activities;

- Apply their understanding of number relationships and number or unit bases in solving problems
- Explore and describe visual and numeric patterns
- Explore problems that reflect contemporary uses of algebra

Resources:

Holt; Coarse 3 (2007); Found throughout entire Coarse 3 book.
Connected Math; Found throughout all Connected math books.
Math Advantage; Found throughout both Purple and Orange books.
Accumulation of Teacher Ideas and Activities;

Year Three Focal Points, Benchmarks, and GLCEs:

Algebra: Analyzing and representing linear functions and solving linear equations and systems of linear equations.

- *Solve equations of the form $ax + b = c$*
- *Understand that to solve the equation $f(x) = g(x)$ means to find all values of x for which the equation is true, determine whether a given value, or values from a given set, is a solution of an equation (0 is a solution of $3x^2 + 2 = 4x + 2$, but 1 is not a solution)*
- *Represent simple relationships between quantities, using verbal descriptions, formulas or equations, tables and graphs*

Resources:

Holt; Coarse (2007); Lesson

Connected Math; Variables and Patterns (Gr. 7), Moving Straight Ahead (Gr. 7), Growing, Growing, Growing (Gr. 8), Frogs, Fleas, and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Thinking with Mathematical Models (Gr. 8)

Math Advantage; Purple Book Chapter 28 and Orange Book Chapters 23-25

Accumulation of Teacher Ideas and Activities;

- Use tables, graphs, and equations to represent variability or change and generalize a rule that describes a pattern of change

Resources:

Holt; Coarse (2007); Lesson

Connected Math; Variables and Patterns (Gr. 7), Moving Straight Ahead (Gr. 7), Growing, Growing, Growing (Gr. 8), Frogs, Fleas, and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Thinking with Mathematical Models (Gr. 8)

Math Advantage; Purple Book Chapter 28 and Orange Book Chapters 23-25

Accumulation of Teacher Ideas and Activities;

- Explore and describe visual and numeric patterns, including linear and non-linear patterns
 - *Represent directly proportional and linear relationships, using verbal descriptions, formulas or equations, tables and graphs, and translate among these representations*
 - *Recognize inversely proportional relationships in contextual situations; know that quantities are inversely, proportional if their product is constant (e.g., the length and width of a rectangle with fixed area, and that an inversely proportional relationship is of the form $y = k/x$ is not a line), know its shape; and know that it crosses neither the x nor the y -axis*
 - *Solve simultaneous linear equations in two variables by graphing, by substitution, and by linear combination; estimate solutions using graphs; include examples that have no solutions and examples that have infinitely many solutions*
 - *Solve linear inequalities in one and two variables, and graph the solution sets*
 - *Set up and solve applied problems involving simultaneous linear equations and linear inequalities*

Resources:

Holt; Coarse (2007); Lesson

Connected Math; Variables and Patterns (Gr. 7), Moving Straight Ahead (Gr. 7), Growing, Growing, Growing (Gr. 8), Frogs, Fleas, and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Thinking with Mathematical Models (Gr. 8)

Math Advantage; Purple Book Chapter 28 and Orange Book Chapters 23-25

Accumulation of Teacher Ideas and Activities;

- Analyze problems, determine which may be or are represented by linear equations, determine strategies for solving the problems, and evaluate the adequacy of the solutions in the context of the problems
 - *Recognize when information given in a table, graph, or formula suggests proportional or linear relationship*

Resources:

Holt; Coarse (2007); Lesson
 Connected Math; Variables and Patterns (Gr. 7), Moving Straight Ahead (Gr. 7), Growing, Growing, Growing (Gr. 8), Frogs, Fleas, and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Thinking with Mathematical Models (Gr. 8)
 Math Advantage; Purple Book Chapter 28 and Orange Book Chapters 23-25
 Accumulation of Teacher Ideas and Activities;

Continued Instruction in Algebra: all benchmarks and GLCEs are essential.

Geometry and Measurement: Analyzing two- and three-dimensional space and figures by using distance and angle.

- Identify and generalize the characteristics, properties, and relationships of shapes and polygons; use these to describe the physical world and to solve problems

Resources:

Holt; Coarse (2007); Lesson
 Connected Math; Stretching and Shrinking (Gr. 7), Filling and Wrapping (Gr. 7), Kaleidoscopes, Hubcaps and Mirrors. (Gr. 8)
 Math Advantage; Purple Book Chapters 10-13 and Orange Book Chapters 20-22
 Accumulation of Teacher Ideas and Activities;

- *Understand and apply basic properties of lines, angles, and triangles, including:*
 - *Triangle inequality*
 - *Relationships of vertical angles, complementary angles, supplementary angles*
 - *Congruence of corresponding and alternate interior angles when parallel lines are cut by a transversal, and that such congruencies imply parallel lines*
 - *Locate interior and exterior angles of any triangle, and use the property that an exterior angle of a triangle is equal to the sum of the remote (opposite) interior angles*
 - *Know that the sum of the exterior angles of a convex polygon is 360°*
 - *Use compass and straightedge to perform basic geometric constructions: the perpendicular bisector of a segment, an equilateral triangle, and the bisector of an angle; understand justifications*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; ; Stretching and Shrinking (Gr. 7), Filling and Wrapping (Gr. 7), Kaleidoscopes,
Hubcaps and Mirrors. (Gr. 8)
Math Advantage; Purple Book Chapters 10-13 and Orange Book Chapters 20-22
Accumulation of Teacher Ideas and Activities;

Pythagorean Theorem

- *Understand at least one proof of the Pythagorean Theorem; use the Pythagorean Theorem and its converse to solve applied problems including perimeter, area, and volume problems*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Looking for Pythagoras (Gr. 8)
Math Advantage; Purple Book Pages 472-475 and Orange Book Chapter 28
Accumulation of Teacher Ideas and Activities;

- *Find the distance between two points on the coordinate plane using the distance formula; recognize that the distance formula is an application of the Pythagorean Theorem*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Looking for Pythagoras (Gr. 8)
Math Advantage; Purple Book Pages 472-475 and Orange Book Chapter 28
Accumulation of Teacher Ideas and Activities;

Continued Instruction for Geometry and Measurement:

- locate all points that satisfy a given condition

Resources:

Holt; Coarse (2007); Lesson
Connected Math; ; Stretching and Shrinking (Gr. 7), Filling and Wrapping (Gr. 7), Kaleidoscopes,
Hubcaps and Mirrors. (Gr. 8)
Math Advantage; Purple Book Chapters 10-13 and Orange Book Chapters 20-22
Accumulation of Teacher Ideas and Activities;

- Locate the position of points or objects described by two or more conditions, including compass directions and Cartesian coordinates;

Resources:

Holt; Coarse (2007); Lesson
Connected Math; ; Stretching and Shrinking (Gr. 7), Filling and Wrapping (Gr. 7), Kaleidoscopes,
Hubcaps and Mirrors. (Gr. 8)
Math Advantage; Purple Book Chapters 10-13 and Orange Book Chapters 20-22
Accumulation of Teacher Ideas and Activities;

Data Analysis and Number and Operations and Algebra: Analyzing and summarizing data sets.

- Describe events as likely or unlikely and give quantitative descriptions of the degree of likelihood
 - *Compute probabilities of events from simple experiments with equally likely outcomes, (e.g. tossing dice, flipping coins, spinners), by listing all possibilities and finding the fraction that meets given conditions*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Variables and Patterns (Gr.7), Moving Straight ahead (Gr. 7), Data Around Us (Gr. 6),
What Do You Expect (Gr. 7), Samples and Populations (Gr. 8), Clever Counting (Gr. 8)
Math Advantage; Purple Book Chapters 20-23 and Orange Book Chapters 16-19
Accumulation of Teacher Ideas and Activities;

- Describe probability as a measure of certainty ranging from 0 to 1 and conduct activities that allow them to express probabilities of simple events in mathematical terms
 - *Express probabilities as fractions, decimals, or percentages between 0 and 1; know that 0 probability means an event will not occur and that probability of 1 means an event will occur*
 - *Understand the difference between independent and dependent events, and recognize common misconceptions involving probability, (e.g. Alice rolls a 6 on a die three times in a row; she is just as likely to roll a 6 on the fourth roll as she was on the previous roll)*
 - *Apply the Basic Counting Principle to find total number of outcomes possible for independent and dependent events, and calculate the probabilities using organized lists or tree diagrams*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Variables and Patterns (Gr.7), Moving Straight ahead (Gr. 7), Data Around Us (Gr. 6),
What Do You Expect (Gr. 7), Samples and Populations (Gr. 8), Clever Counting (Gr. 8)
Math Advantage; Purple Book Chapters 20-23 and Orange Book Chapters 16-19
Accumulation of Teacher Ideas and Activities;

- Critically examine the sources of data; the techniques used to collect, organize, and present data; the inferences drawn from the data; and the possible sources of bias in the data or their presentation

- *Recognize practices of collecting and displaying data that may bias the presentation or analysis*
- *Determine which measure of central tendency (mean, median, mode) best represents a data set, e.g. salaries, home prices for answering certain questions; justify choice made*
- *Find and interpret the median, quartiles, and inter-quartile range of a given set of data*

Resources:

Holt; Coarse (2007); Lesson
 Connected Math; Variables and Patterns (Gr.7), Moving Straight ahead (Gr. 7), Data Around Us (Gr. 6),
 What Do You Expect (Gr. 7), Samples and Populations (Gr. 8), Clever Counting (Gr. 8)
 Math Advantage; Purple Book Chapters 20-23 and Orange Book Chapters 16-19
 Accumulation of Teacher Ideas and Activities;

- Describe the shape of data distribution and identify measures of the center (central tendency), the spread (range), correlations, and any outliers

Resources:

Holt; Coarse (2007); Lesson
 Connected Math; Variables and Patterns (Gr.7), Moving Straight ahead (Gr. 7), Data Around Us (Gr. 6),
 What Do You Expect (Gr. 7), Samples and Populations (Gr. 8), Clever Counting (Gr. 8)
 Math Advantage; Purple Book Chapter 21 and Orange Book Chapter 17
 Accumulation of Teacher Ideas and Activities;

- Organize and present data using a variety of appropriate representations: tables, charts, graphs, and spreadsheets; explain why one representation may be preferred over another
 - *Represent and interpret data using circle graphs, stem and leaf plots, histograms, and box-and-whisker plots, and select appropriate representation to address specific questions*
 - *Create and interpret scatter plots and find line of best fit (negative and positive correlations) and use an estimated line of best fit to answer questions about the data*

Resources:

Holt; Coarse (2007); Lesson
 Connected Math; Variables and Patterns (Gr.7), Moving Straight ahead (Gr. 7), Data Around Us (Gr. 6),
 What Do You Expect (Gr. 7), Samples and Populations (Gr. 8), Clever Counting (Gr. 8)
 Math Advantage; Purple Book Chapters 20-23 and Orange Book Chapters 16-19
 Accumulation of Teacher Ideas and Activities;

- Make and test hypotheses

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

Continued Instruction for Data Analysis and Number and Operations and Algebra:

- Conduct experiments and give examples to illustrate the difference between dependent and independent events

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Variables and Patterns (Gr. 7), Frogs, Fleas and Painted Cubes (Gr. 8)
Math Advantage; Purple Book Chapters 20-23 and Orange Book Chapters 16-19
Accumulation of Teacher Ideas and Activities;

- Explain the difference between probabilities determined from experiments or chance events and probabilities derived mathematically (theoretical), and explain how empirical probability (chance events) changes for a large number of trials
 - *Understand the relationship of probability to relative frequency*
 - *Compute relative frequencies and cumulative frequencies from a table of experimental results for a repeated event or for given data sets; answer questions regarding the results*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Variables and Patterns (Gr.7), Moving Straight ahead (Gr. 7), Data Around Us (Gr. 6),
What Do You Expect (Gr. 7), Samples and Populations (Gr. 8), Clever Counting (Gr. 8)
Math Advantage; Purple Book Chapters 20-23 and Orange Book Chapters 16-19
Accumulation of Teacher Ideas and Activities;

- Conduct probability experiments and simulations to model and solve problems
- Use manipulatives, diagrams, and the fundamental theorem of counting to count permutations and combinations
- Draw, explain, and justify conclusions based on data from probability experiments
- Make predictions and decision based on data
- Collect and explore data through observation, measurement, surveys, and sampling techniques
- Design and implement strategies to obtain, organize, and present data needed to solve a particular question
- Critically read data from tables, charts, or graphs and explain the source of the data and what the data represents
- Formulate questions or problems, gather and interpret data to answer them
- Draw, explain, and justify conclusions based on data
- Use investigations and mathematical models to make inferences and predictions to answer questions and solve problems
- Design experiments to model and solve problems using sampling and simulations

- Formulate and communicate arguments and conclusions based on data and evaluate the arguments
- Begin to investigate applications in bi-variable data and linear relationships and explore questions on what will happen to one quantity if another variable is changed
- Use patterns and generalizations to solve problems and explore new content
- Use generalizations about patterns to predict and justify inferences
- Identify and describe the nature of change in more abstract and complex situations; explore different kinds of change and patterns of variation
- Show how to generalize a pattern of change and describe the associated variables and their relationships through manipulatives and modeling

Resources:

Holt; Coarse (2007); Lesson
 Connected Math; Variables and Patterns (Gr.7), Moving Straight ahead (Gr. 7), Data Around Us (Gr. 6),
 What Do You Expect (Gr. 7), Samples and Populations (Gr. 8), Clever Counting (Gr. 8)
 Math Advantage; Purple Book Chapters 20-23 and Orange Book Chapters 16-19
 Accumulation of Teacher Ideas and Activities;

Combinatorics

- Develop strategies for estimating quantities and evaluate the reasonableness of the estimates
- Use diagrams to count permutations and combinations
- Solve problems involving networks, such as counting paths between points
- Use manipulatives and drawings to analyze algorithms used to solve a problem
- Use algorithmic problem solving for problems involving existence, counting, or optimization (e.g., telephone numbers, license plates, checkout lines, passwords, etc.)

Resources:

Holt; Coarse (2007); Lesson
 Connected Math; Clever Counting (Gr. 8)
 Math Advantage; Purple Book Pages 432,433-435 and Orange Book Pages 352-353
 Accumulation of Teacher Ideas and Activities;

Algebra: Analyzing and representing non-linear functions and solving non-linear equations and systems of non-linear equations.

Continued Instruction in Algebra:

Non-linear Relationships

- Describe the nature of change in more abstract and complex situations and explore different kinds of change and patterns of variation
 - *For basic functions (e.g. simple quadratics, direct and indirect variation, and population growth) describe how changes in one variable affect the other variables*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing, Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Differentiate between linear and non-linear functions by comparing tables, graphs, and equations
 - *Identify and represent linear functions, quadratic functions, and other simple functions including inverse functions ($y = k/x$), cubic ($y = ax^3$) roots, ($y =$), and exponentials ($y = ax, a > 0$), using tables, graphs, and equations*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing, Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Recognize that two objects may have the same measurement on one attribute (e.g. area) but not necessarily on another (perimeter)

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing, Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Draw geometric representations of triangular numbers and square numbers

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing,
Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Use geometric models, tables, and graphs to represent algebraic ideas and write algebraic expressions and equations that correspond to the different representations
 - *Recognize basic functions in problem context (e.g., area of a circle is πr^2 , volume of a sphere is πr^3) and represent them using tables, graphs, and formulas*
 - *Relate quadratic functions in factored form and expanded form to their graphs and vice versa; in particular, note that solutions of a quadratic equation are the x-intercepts of the corresponding quadratic function*
 - *Graph factorable quadratic functions, finding where the graph intersects the x axis and the coordinates of the vertex; use parabola and roots; include functions in vertex form ($y = a(x-h)^2 + k$) where (h,k) are the coordinates for the maximum or minimum point, and a determines the vertical stretch or shrink of the parabola); standard form ($y = ax^2 + bx + c$) and those with leading coefficient -1 , e.g., $y = x^2 - 36$, $y = (x-2)^2 - 9$; $y = -x^2$; $y = -(x-3)^2$*
 - *Use the vertical line test to determine if a graph represents a function or non-function*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing,
Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Explore relationships arising from interesting contexts and use variables and relationships to solve mathematical problems
 - *Factor simple quadratic expressions with integer coefficients; solve quadratic equations by taking square roots, by factoring, verify solutions by evaluation*
 - *Solve applied problems involving simple quadratic equations*

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing,
Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Represent variability in tabular, graphic, and symbolic form

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing,
Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Use calculators to explore, compute and interpret exponential growth and quadratic relationships

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing,
Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Use recursive techniques based on exponential growth to extend sequences

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing,
Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

- Use geometric representations of rational numbers and exponents

Resources:

Holt; Coarse (2007); Lesson
Connected Math; Frogs, Fleas and Painted Cubes (Gr. 8), Say It with Symbols (Gr. 8), Growing,
Growing, Growing (Gr. 8), Looking for Pythagoras (Gr. 8)
Math Advantage;
Accumulation of Teacher Ideas and Activities;

Other:

Algebraic Thinking and Reasoning

