

Grade 8 Math

Revised 07/2008

Topic: Number Sense/Percents					
Essential Questions: How can numbers be used in different ways?					
Performance Indicators	Guided Questions		Essential Knowledge and Skills	Classroom Ideas (Instructional Strategies)	Assessment Ideas (evidence of understanding)
<p>8.N.3 Read, write, and identify percents less than 1% and greater than 100%.</p> <p>8.N.4 Apply percents to: tax, percent increase/decrease, simple interest, sale price, commission, interest rates, gratuities.</p> <p>8.N.5 Estimate a percent of quantity, given an application.</p> <p>8.N.6 Justify the reasonableness of answers using estimation.</p>	<p>What does percent mean?</p> <p>How do percents work?</p>		<p>Students will solve percent problems.</p> <p>Students will find percent of change.</p> <p>Students will find commission.</p> <p>Students will find sales tax.</p> <p>Students will find discount.</p> <p>Students will find simple interest.</p>	<p>Shopping activity</p> <p>Tax and tip activity</p>	<p>POD</p> <p>Homework</p> <p>Quiz</p> <p>Test</p> <p>Shopping Project</p>
Connections to Text (Resources): Chapter 6				Time: ~3 weeks	
Connections to Technology:					
Key Vocabulary: commission, interest, sale price, interest rate, percent discount					

Grade 8 Math

Revised 07/2008

Topic: Algebra/Basic Algebra					
Essential Questions: How do cue words help you write an equation? How can numbers be used in different ways?					
Performance Indicators	Guided Questions		Essential Knowledge and Skills	Classroom Ideas (Instructional Strategies)	Assessment Ideas (evidence of understanding)
7.N.11 Simplify expressions using order of operations. 8.A.2 Write verbal expressions that match given mathematical expressions. 7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation. 8.A.1 Translate verbal sentences into algebraic inequalities. 8.A.13 Solve multi-step inequalities and graph the solution set on a number line. 8.A.14 Solve linear inequalities by combining like terms, using the distributive property, or moving variables to one side of the inequality.	What is the opposite of _____? (Addition, subtraction, multiplication, division)		Students will solve linear equations. Students will solve linear inequalities Students will translate sentences into algebraic expressions. Students will perform order of operations.	Define vocabulary words Examples Scale balance	POD Homework Quiz Test
Connections to Text (Resources): Chapter 3				Time: Algebra~ 9 weeks total	
Connections to Technology:					
Key Vocabulary: algebraic expression, algebraic equation, inequality, linear, nonlinear, all cue words for operations, inverse, like terms					

Grade 8 Math

Revised 07/2008

Topic: Algebra/Exponents					
Essential Questions: How can numbers be used in different ways?					
Performance Indicators	Guided Questions		Essential Knowledge and Skills	Classroom Ideas (Instructional Strategies)	Assessment Ideas (evidence of understanding)
8.A.6 Multiply and divide monomials. 8.N.1 Develop and apply the laws of exponents for multiplication and division. 8.N.2 Evaluate expressions with integral exponents. 7.N.14 Develop a conceptual understanding of negative and zero exponents with a base of 10 and relate to fractions and decimals.	What is an exponent?		Students will perform operations with exponents.	Examples Write out in expanded form.	POD Homework Quiz Test
Connections to Text (Resources): Chapter 4				Time: Algebra ~ 9 weeks total	
Connections to Technology:					
Key Vocabulary: exponent, quotient, product					

Grade 8 Math

Revised 07/2008

Topic: Algebra/Polynomials					
Essential Questions: Why are procedures in algebra important?					
Performance Indicators	Guided Questions		Essential Knowledge and Skills	Classroom Ideas (Instructional Strategies)	Assessment Ideas (evidence of understanding)
8.A.7 Add and subtract polynomials (integer coefficients). 8.A.8 Multiply a binomial by a monomial or a binomial (integer coefficients). 8.A.9 Divide a polynomial by a monomial (integer coefficients). 8.A.10 Factor algebraic expressions using the GCF. 8.A.11 Factor a trinomial in the form of $ax^2+bx+c=0$; $a=1$ and c having no more than 3 sets of factors.	What do you look for when adding/subtracting polynomials? What is a GCF?		Students will perform operations with polynomials. Students will factor polynomials. Students will solve quadratic equations by factoring. Students will find GCF. Students will factor using GCF.	FOIL- Punnett Square Examples	POD Homework Quiz Test
Connections to Text (Resources): Chapter 13				Time: Algebra ~9 weeks total	
Connections to Technology:					
Key Vocabulary: monomial, binomial, trinomial, like terms, FOIL, GCF					

Grade 8 Math

Revised 07/2008

Topic: Geometry/2-D Angles					
Essential Questions: How is geometry used in life?					
Performance Indicators	Guided Questions		Essential Knowledge and Skills	Classroom Ideas (Instructional Strategies)	Assessment Ideas (evidence of understanding)
8.G.0 Construct using straight edge and compass. 8.G.1 Identify pairs of vertical angles as congruent. 8.G.2 Identify pairs of supplementary and complementary angles. 8.G.3 Calculate the missing angle in a supplementary or complementary pair. 8.G.4 Determine angle pair relationships when given two parallel lines cut by a transversal. 8.G.5 Calculate the missing angle measurements when given two intersecting lines and an angle. 8.G.6 Calculate the missing angle measurements when given two intersecting lines and an angle. 8.G.7 Describe and identify transformations in the plane, using proper function notation. 8.G.8 Draw the image of a figure under rotations of 90 and 180 degrees. 8.G.9 Draw the image of a figure under a reflection over a given line. 8.G.10 Draw the image of a figure under a translation. 8.G.11 Draw the image of a figure under a dilation. 8.G.12 Identify the properties preserved and not preserved under a reflection, rotation, translation, and dilation. 8.A.12 Apply algebra to determine the measure of angles formed by or contained in parallel lines cut by a transversal and by intersecting lines.	What is the difference between complementary and supplementary? How many angles are formed when 2 parallel lines are intersected by a 3 rd line? Where are vertical angles found? What other words can be used for reflection, rotation, translation, and dilation?		Students will solve problems looking for angles. Students will understand angle relationships. Students will perform transformations in coordinate plane. Students will do basic constructions with a straight edge and compass.	Use tiles on floor with meter stick. Physically rotate graph paper. Students stand and rotate. Tear paper and slide angles down.	POD Homework Quiz Test
Connections to Text (Resources): Chapter 10, Supplemental materials				Time: Geometry ~10 weeks total	
Connections to Technology:					
Key Vocabulary: vertical, compliment, supplement, corresponding, congruent, transversal, alternate interior, alternate exterior, symmetry, reflection, dilation, rotation, translation, ordered pair.					

Grade 8 Math

Revised 07/2008

Topic: Geometry/Right Triangles					
Essential Questions: How is graphing used in life?					
Performance Indicators	Guided Questions		Essential Knowledge and Skills	Classroom Ideas (Instructional Strategies)	Assessment Ideas (evidence of understanding)
<p>8.R.6 Use representations to explore problem situations.</p> <p>8.R.9 Use mathematics to show and understand social phenomena.</p> <p>7.G.5 Identify the right angle, hypotenuse, and legs of a right triangle.</p> <p>7.G.6 Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem.</p> <p>7.G.8 Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle.</p> <p>7.G.9 Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem and using a calculator.</p>	<p>When do you use trig and when do you use Pythagorean Theorem?</p>		<p>Students will use trigonometric ratios to solve problems.</p> <p>Students will use Pythagorean Theorem to solve problems.</p>	<p>Draw 3-4-5 triangle and use area to discover the Pythagorean Theorem.</p>	<p>POD Homework Quiz Test</p>
Connections to Text (Resources): Chapter 9, Supplemental materials.				Time: Geometry ~10 weeks total	
Connections to Technology:					
Key Vocabulary: hypotenuse, leg, sine, cosine, tangent, opposite, congruent					

Grade 8 Math

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Topic: Geometry/Graphing					
Essential Questions: How is geometry used in life?					
Performance Indicators	Guided Questions		Essential Knowledge and Skills	Classroom Ideas (Instructional Strategies)	Assessment Ideas (evidence of understanding)
<p>8.G.13 Determine the slope of a line from a graph and explain the meaning of slope as a constant rate of change.</p> <p>8.G.14 Determine the y-intercept of a line from a graph and be able to explain the y intercept.</p> <p>8.G.15 Graph a line using a table of values.</p> <p>8.G.16 Determine the equation of a line given the slope and y-intercept.</p> <p>8.G.17 Graph a line from an equation in slope intercept form.</p> <p>8.G.18 Solve systems of equations graphically.</p> <p>8.G.19 Graph the solution set of an inequality on a number line.</p> <p>8.G.20 Distinguish between linear and nonlinear equations.</p> <p>8.G.21 Recognize the characteristics of quadratics in tables, graphs, equations and situations.</p>	<p>How do you make a table of values for an equation?</p> <p>What does slope mean?</p>		<p>Students will graph a linear equation.</p> <p>Students will graph a quadratic equation.</p> <p>Students will find the slope of a linear equation.</p> <p>Students will find the x and y intercepts of a linear equation.</p> <p>Students will write linear equations.</p>	<p>Have students go to a graph board.</p> <p>Graph puzzles.</p>	<p>POD</p> <p>Homework</p> <p>Quiz</p> <p>Test</p>
Connections to Text (Resources): Chapter 7, Supplemental materials			Time: Geometry ~10 weeks total		
Connections to Technology:					
Key Vocabulary: slope, intercept, linear, quadratic, ordered pair					