

## Pennsylvania Content Standards Grade Level Benchmarks

### 2.1. Numbers, Number Systems and Number Relationships

6	7	8	9
<p>A. Represent and explain relationships among integers, decimals, fractions and percents and distinguish appropriate form to use to solve problems.</p> <ul style="list-style-type: none"> <li>• Express numbers in factor form.</li> <li>• Find GCF and LCM.</li> <li>• Classify numbers as prime or composite.</li> </ul> <p>B. Simplify equivalent numeric expressions involving four basic operations and grouping symbols.</p> <p>C. Use a number line to represent and compare fractions, decimals and integers and to model real life situations.</p> <p>D. Write a ratio or proportion to represent a real world problem.</p> <p>E. Model simple algebraic expressions using tiles or block manipulative.</p> <p><b>F. Use the number line model to represent with integers (operations) and their applications.</b></p>	<p><b>A. Represent and use numbers in equivalent forms (integers, fractions, decimals, percents, exponents, scientific notation and square roots).</b></p> <ul style="list-style-type: none"> <li>• Express a number using prime factorization.</li> <li>• Use prime factorization to determine GCF and LCM.</li> </ul> <p>B. Simplify equivalent numeric expressions involving four basic operations, grouping symbols, exponents, and square roots.</p> <p><b>C. Distinguish between and order rational and irrational numbers.</b></p> <p>D. Distinguish between ratios and rates and solve proportions that represent real world problems.</p> <p>E. Simplify algebraic expressions involving like terms and use algebraic expressions to model real world situations.</p>	<p><b>A. Represent and use numbers in equivalent forms (integers, fractions, decimals, percents, exponents, scientific notation and square roots).</b></p> <ul style="list-style-type: none"> <li>• Express a number using prime factorization.</li> <li>• Use prime factorization to determine GCF and LCM.</li> </ul> <p>B. Simplify numerical expressions involving exponents, scientific notations and using order of operations.</p> <p><b>C. Distinguish between and order rational and irrational numbers.</b></p> <p><b>E. Simplify and expand algebraic expressions using exponential forms.</b></p> <p><b>F. Use the number line model to demonstrate with integers and their applications.</b></p>	<p>A. Describe and use inverse operations to solve linear equations, inequalities and absolute value.</p> <ul style="list-style-type: none"> <li>• Use number line graphs to represent integers, absolute value, powers, and roots.</li> <li>• Describe number line graphs represented by absolute value.</li> <li>• Simplify and estimate roots.</li> </ul>

6	7	8	9
G. Model and solve real life situations using one and two-step equations.	G. Solve one and two-step equations and inequalities to solve real world problems.	<p>G. Use the inverse relationships between addition, subtraction, multiplication, division, and exponentiation and root extraction to determine unknown quantities in equations.</p> <p>O. Apply ratio and proportion to mathematical problem situations involving distance, rate, time, and similar triangles.</p>	

**Pennsylvania Content Standards Grade Level Benchmarks**

**2.2. Computation and Estimation**

6	7	8	9
A. Calculate the value of expressions involving grouping symbols.	<p>A. Complete calculations by applying the order of operations.</p> <ul style="list-style-type: none"> <li>• Including exponents and square roots.</li> </ul>	<p>A. Complete calculations by applying the order of operations.</p> <ul style="list-style-type: none"> <li>• Including exponents and square roots.</li> </ul>	<p>A. Describe and apply computation concepts, operations, and procedures involving real numbers.</p> <ul style="list-style-type: none"> <li>• Simplify irrational expressions involving square roots.</li> <li>• Perform calculations by applying rule for exponents and roots.</li> <li>• Define fractional exponents and rewrite in radical form.</li> </ul> <p>B. Apply scientific notation to estimate very</p>

6	7	8	9
<p><b>B. Add, subtract, multiply and divide different kinds and forms of rational numbers including integers, decimal fractions, percents and proper and improper fractions.</b></p> <ul style="list-style-type: none"> <li>• <b>Include real world applications.</b></li> <li>• <b>Demonstrate the use of a calculator for the above calculations.</b></li> </ul> <p>E. Define percent and estimate solutions to percent problems.</p> <p>F. Explain when rounding or exact numbers appropriate in real life problems.</p> <ul style="list-style-type: none"> <li>• <b>Demonstrate ability to round to any place value including decimals.</b></li> </ul> <p>H. Check the reasonableness of</p>	<p><b>B. Add, subtract, multiply and divide different kinds and forms of rational numbers including integers, decimal fractions, percents and proper and improper fractions.</b></p> <ul style="list-style-type: none"> <li>• <b>Include real world applications.</b></li> <li>• <b>Demonstrate use of calculator for above calculations.</b></li> </ul> <p>C. Create and solve word problems involving ratios, proportions, and percents including determining percentage, rate, and base.</p> <p>D. Identify and distinguish between rational and irrational numbers (e.g. (pi), square roots).</p> <p>E. Estimate the reasonableness of an answer involving rational numbers and/or percent in word problems.</p> <ul style="list-style-type: none"> <li>• <b>Distinguish between situations requiring different degrees of accuracy.</b></li> </ul> <p>F. Describe appropriate uses of scientific calculator, pencil and paper and mental math.</p> <ul style="list-style-type: none"> <li>• <b>Solve problems rounding to an appropriate number of decimal places.</b></li> </ul>	<p><b>B. Add, subtract, multiply and divide different kinds and forms of rational numbers including integers, decimal fractions, percents and proper and improper fractions.</b></p> <ul style="list-style-type: none"> <li>• <b>Include real world applications.</b></li> <li>• <b>Demonstrate use of calculator for above calculations.</b></li> </ul> <p>C. <b>Solve word problems using ratio and proportion .</b></p> <ul style="list-style-type: none"> <li>• <b>Include percent increase and decrease.</b></li> </ul> <p>D. <b>Estimate the value of irrational numbers.</b></p> <p>E. <b>Estimate amount of tips and discounts using ratios, proportions and percents.</b></p> <ul style="list-style-type: none"> <li>• <b>Develop and use procedures for calculating percents using mental math (e.g. 1%, 10%, 15%, 20%)</b></li> </ul> <p>G. <b>Identify the difference between exact value and approximations and determine which is appropriate for a given situation.</b></p>	<p>large and small numbers.</p> <p>C. <b>Construct and apply mathematical models, including lines and curves of best fit, to estimate values of related quantities.</b></p> <p>D. Recognize, identify, and correct computational errors.</p> <p>E. Interpret tolerance statements (e.g. <math>5 \pm .001</math> units).</p> <p>F. <b>Demonstrate skills for using computer spreadsheets and scientific and graphing calculators.</b></p>

<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
answers involving fractions.	H. <b>Check the reasonableness of an answer.</b>	H. <b>Check the reasonableness of an answer.</b>	

## Pennsylvania Content Standards Grade Level Benchmarks

### 2.3. Measurement and Estimation

<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<p>A. Model and explain using manipulatives (e.g., string, square and cubes), linear measure, area, and volume.</p> <ul style="list-style-type: none"> <li>• Measure and apply formulas for perimeter and area for these polygons: rectangle, triangle, parallelogram, and circle model.</li> <li>• Apply formulas for volume for rectangular prisms and cylinders</li> </ul> <p>C. Draw, label and measure acute, right, obtuse and straight angles using protractors.</p> <p>D. Choose and justify an appropriate unit of measurement (standard and metric) and demonstrate proficiency with measuring tools.</p> <ul style="list-style-type: none"> <li>• Identify and compare units of distance, time and rate.</li> <li>• Apply appropriate conversations to measurement in real life situations.</li> </ul>	<p>A. Apply formulas to determine perimeter and area of polygons and circles, and volume of prisms, pyramids, spheres, cylinders, and cones.</p> <ul style="list-style-type: none"> <li>• Describe and apply strategies for using formulas to determine the area and volume of irregular figures.</li> </ul> <p><b>B. Solve rate problems. (e.g. rate x time = distance, principal x interest rate = interest, etc.)</b></p> <p>C. Measure and construct angles using a protractor.</p> <ul style="list-style-type: none"> <li>• Determine, calculate, verify and describe the relationships for the sum of the interior and exterior angles of polygons.</li> </ul> <p>D. Recognize use and appropriate measures of distance, rate, capacity, are, weight, mass and angles in degrees in real-life situations.</p>	<p><b>A. Develop formulas and procedures for determining measurements (e.g. area, volume, distance, etc.).</b></p> <p><b>B. Solve rate problems (e.g. rate x time = distance, principal x interest rate = interest, etc.)</b></p> <p><b>C. Measure angles in degrees and determine relations of angles.</b></p> <p><b>D. Estimate, use, and describe measures of distance, rate, perimeter, area, volume, capacity, weight, mass and angles.</b></p>	<p>A. Demonstrate measurement techniques using appropriate tools (e.g. ruler, protractor, micrometer, caliper.)</p> <p>C. Describe the relationship among linear dimensions, area, and volume and the corresponding uses of units, square units, and cubic units of measure in the real world.</p> <p>D. Describe and give examples of the need for precision and significant digits as they relate to measurement and how units indicate precision.</p>

6	7	8	9
G. Interpret the scale on maps and drawings.	<p>E. Compare and analyze perimeters, areas, volumes of similar figures.</p> <p>F. <b>Use scale measurements to interpret maps and scale drawings.</b></p> <p>G. Create and use scale drawings and models.</p>	<p>E. <b>Describe how a change in linear dimension of an object affects its perimeter, area, and volume.</b></p> <p>F. <b>Use scale measurements to interpret maps or drawings.</b></p> <p>G. <b>Create and use scale models.</b></p>	

**Pennsylvania Content Standards Grade Level Benchmarks**

**2.4. Mathematical Reasoning and Connections**

6	7	8	9
<p>A. Generalize from a pattern of observations, make conjectures and provide supporting arguments.</p> <p>B. Examine numeric relationship expressions to arrive at a conclusion. (e.g.</p>	<p>A. Generalize from a pattern of observations, make conjectures and provide supporting arguments including constructing verifications and counter examples.</p> <p>B. Develop numeric relationship expressions to arrive at a conclusion. (e.g. commutative, associative, distributive,</p>	<p><b>A. Make conjectures based on logical reasoning and test conjectures by using counter-examples.</b></p> <p><b>B. Combine numeric relationships to arrive at a conclusion.</b></p>	<p><b>A. Construct algorithms for multi-step and real world problems.</b></p> <ul style="list-style-type: none"> <li>Describe connections between equivalent representations and corresponding procedures of the same problem situation or mathematical concept.</li> </ul> <p>B. Constructs logical verifications or counter examples to test conjectures and</p>

6	7	8	9
<p>commutative property, association property, transitive property)</p> <p>C. Examine if...then statements to determine if the statements are valid.</p> <p>D. Use and explain algorithmic procedures for computing and estimating with whole numbers, fractions, decimals and integers.</p>	<p>and transitive properties, substitution, and numerical patterns)</p> <p>C. Create if...then statements and test their validity.</p> <p>D. Use and explain algorithmic procedures for computing and estimating with whole numbers, fractions, decimals and integers.</p> <p>E. Distinguish between and apply deductive and inductive reasoning.</p>	<p><b>at a conclusion.</b></p> <p><b>C. Use if ... then statements to construct simple valid arguments.</b></p> <p><b>D. Construct, use, and explain algorithmic procedures for computing and estimating with whole numbers, fractions, decimals and integers.</b></p> <p><b>E. Distinguish between inductive and deductive reasoning.</b></p> <p><b>F. Use measurements and statistics in family and consumer science.</b></p>	<p>counter examples to test conjectures and to justify algorithms and solutions to problems.</p> <p>D. Use if . . . then and converse statements to construct simple valid arguments.</p> <p><b>E. Solve equations that model problems in the sciences.</b></p>

6	7	8	9

## Pennsylvania Content Standards Grade Level Benchmarks

### 2.5. Mathematical Problem Solving and Communication

6	7	8	9
<p><b>A. Invent, select, use, and justify the appropriate methods, materials and strategies used to solve problems.</b></p> <ul style="list-style-type: none"> <li>Problem solving strategies include but are not limited to: guess and check, working backwards, solving a simpler problem, making a graph, making a model, making a list, using simulation, drawing a diagram, using logical reasoning, using algebra.</li> </ul> <p><b>B. Verify and interpret results using precise mathematical language, notation, and representations, including numerical tables and equations, simple algebraic equations and formulas, charts, graphs and diagrams.</b></p> <p><b>C. Justify strategies and defend approaches used and conclusions reached.</b></p> <ul style="list-style-type: none"> <li>Justify generalization drawn from conclusions.</li> </ul> <p><b>D. Determine pertinent information in problem situations, and whether any further information is needed for solution.</b></p>	<p><b>A. Invent, select, use, and justify the appropriate methods, materials and strategies used to solve problems.</b></p> <ul style="list-style-type: none"> <li>Problem solving strategies include, but are not limited to, guess and check, working backwards, solving a simpler problem, making a graph, making a model, making a list, using simulation, drawing a diagram, using logical reasoning, using algebra.</li> </ul> <p><b>B. Verify and interpret results using precise mathematical language, notation, and representations, including numerical tables and equations, simple algebraic equations and formulas, charts, graphs and diagrams.</b></p> <p><b>C. Justify strategies and defend approaches used and conclusions reached.</b></p> <ul style="list-style-type: none"> <li>Justify generalization drawn from conclusions.</li> </ul> <p><b>D. Determine pertinent information in problem situations and whether any further information is needed for solution.</b></p>	<p><b>A. Invent, select, use, and justify the appropriate methods, materials and strategies used to solve problems.</b></p> <p><b>B. Verify and interpret results using precise mathematical language, notation, and representations, including numerical tables and equations, simple algebraic equations and formulas, charts, graphs and diagrams.</b></p> <p><b>C. Justify strategies and defend approaches used and conclusions reached.</b></p> <ul style="list-style-type: none"> <li>Justify generalizations drawn from conclusions</li> </ul> <p><b>D. Determine pertinent information in problem situations, and whether any further information is needed for solution.</b></p>	<p><b>A. Describe alternative methods or strategies to solve problems.</b></p> <p><b>B. Formulate and solve new problems based on existing examples.</b></p> <p><b>C. Create and write and solve problem situations and translate among oral, written, concrete, pictorial and graphical forms.</b></p> <p><b>D. Create and write a problem, determines information required to solve the problem, chooses methods for obtaining this information, and sets limits for acceptable solutions.</b></p>

6	7	8	9

**Pennsylvania Content Standards Grade Level Benchmarks**

**2.6. Statistics and Data Analysis**

6	7	8	9
<p>A. Describe data using mean, median, mode, range, and quartiles.</p>	<p>A. Analyze data using mean, median, mode, range and quartiles.</p> <ul style="list-style-type: none"> <li>• Calculate mean, median, mode, and range using scientific and graphing calculators.</li> </ul>	<p><b>A. Compare and contrast different plots of data using values of mean, median, mode, quartiles and range.</b></p> <p><b>B. Explain effects on reliability of sampling procedures and of missing or incorrect</b></p>	

6	7	8	9
<p>C. Collect and analyze data to make predictions.</p> <p>E. Interpret data using pictures, tallies, tables, charts, bar graphs, circles graphs, plots, and Venn diagrams.</p>	<p>C. Interpret and draw the scatter plot of two quantities and describe any relationship of the variables.</p> <p>E. Collect and represent data using stem-and-leaf plot and box-and-whisker plots.</p> <p>F. Explain data displayed on a spreadsheet.</p> <p>G. Examine examples of valid and invalid surveys and the sample used.</p>	<p><b>information.</b></p> <p><b>C. Fit a line to the scatter plot of two quantities and describe any correlation of the variables.</b></p> <p><b>D. Design and carry out a random sampling procedure.</b></p> <p><b>E. Analyze and display data in stem-and-leaf and box-and-whisker plots.</b></p> <p><b>F. Use scientific and graphing calculators and computer spreadsheets to organize and analyze data.</b></p> <p><b>G. Determine the validity of the sampling method described in studies published in local or national newspapers.</b></p>	<p>C. Determine line of best fit for a scatter plot.</p> <ul style="list-style-type: none"> <li>• Approximate visually and calculate regression using graphics calculator.</li> <li>• Determine strength of correlation for a scatter plot (e.g. strong, weak, or no correlation).</li> <li>• Identify whether correlation is positive or negative (e.g. or shows growth or decay)</li> </ul> <p><b>D. Make predictions using interpolation, extrapolation, regression, and estimation, using technology.</b></p> <p>E. Describe methods of data collection (e.g. Census, sample survey, observational study).</p> <ul style="list-style-type: none"> <li>• Identify and describe sources of bias in surveys. (e.g., under coverage, voluntary response, wording of questions).</li> <li>• Identify types of samples (e.g. cluster, stratified).</li> <li>• Critique a survey using random sampling.</li> </ul> <p>F. Display categorical data in two-way tables (e.g., classifying data according to categorical variables, male, female and freshman, sophomore).</p>

6	7	8	9
			<p>H. Calculate summary statistics of data distributions using mean, median, mode, quartiles, range, and standard deviation.</p> <ul style="list-style-type: none"> <li>• Compare and contrast different data distributions using summary statistics.</li> <li>• Determine the effect of changing units on summary measures.</li> <li>• Define standard deviation.</li> <li>• Select an appropriate data display for a data set and recognize when a graph does not give an accurate picture of a data set.</li> <li>• Explain the meaning of a confidence interval and margin of error.</li> </ul>

## Pennsylvania Content Standards Grade Level Benchmarks

### 2.7. Probability and Predictions

6	7	8	9
<p>A. Determine and identify the probability of an event given all possible outcomes.</p> <p>B. Determine the probability of an event.</p> <ul style="list-style-type: none"> <li>• Express the probability of an event as a fraction, decimal, and percent.</li> <li>• Predict outcomes using sampling.</li> <li>• Calculate the likelihood of an event occurring given the number of trials and probability.</li> </ul> <p>C. Create and solve a real-life situation that requires probability.</p> <p>D. Make and justify predictions that are based on experimental probability.</p>	<p>B. Design and conduct an experiment with dependent and independent events and determine the probability of each.</p> <ul style="list-style-type: none"> <li>• Compare and contrast independent and dependent events and determine the probability for each.</li> </ul> <p>C. Write and solve a problem situation requiring probability in a real-world event.</p> <p>D. Conduct an experiment and discuss the differences between the experimental and theoretical probabilities.</p>	<p><b>A. Determine the number of combinations and permutations for an event.</b></p> <p><b>B. Present the results of an experiment using visual representations (tables, charts, and graphs).</b></p> <p><b>C. Analyze predictions such as election polls.</b></p> <p><b>D. Compare and contrast results from observations and mathematical models.</b></p> <p><b>E. Make valid inferences, predictions and arguments based on probability.</b></p>	<p>A. Define and calculate probability and odds of event.</p> <ul style="list-style-type: none"> <li>• Describe and illustrate the “Law of Large Numbers” concept. Describe and illustrate the “Law of Large Numbers” concept.</li> </ul> <p>E. Simulate a probability distribution of an event (e.g., tossing a coin, rolling dice, using technology)..</p> <ul style="list-style-type: none"> <li>• Define and calculate conditional probability Define and calculate conditional probability.</li> </ul>



6	7	8	9
<p>D. Use concrete models or symbols to model simple algebraic expressions.</p> <ul style="list-style-type: none"> <li>• Algebraic Balances</li> <li>• Algebra Tiles/Blocks</li> <li>• Chips or Counters</li> <li>• Number Tiles</li> </ul> <p>E. Solve one and two-step equations.</p> <p>J. Show that an equality relationship between two quantities remains the same as long as the same change is made to both quantities.</p>	<p>D. Represent algebraic expressions using concrete models (tiles, blocks).</p> <p>E. Solve one and two-step equations and inequalities.</p> <p>G. Write function rules given a data table.</p> <p>H. Plot, describe, and interpret points on a coordinate plane.</p> <p>J. Show that an inequality relationship between two quantities remains the same as long</p>	<p><b>D. Use concrete objects to model algebraic concepts.</b></p> <p><b>E. Select and use a strategy to solve an equation or inequality, explain the solution and check the solution for accuracy.</b></p> <p><b>F. Solve and graph equations and inequalities using scientific and graphing calculators and computer spreadsheets.</b></p> <p><b>G. Represent relationships with tables, graphs in the coordinate plane, and verbal or symbolic rules.</b></p> <p><b>H. Graph a linear function from a rule or table.</b></p> <p><b>I. Generate a table or graph from a function and use graphing calculators and computer spreadsheets to graph and analyze functions.</b></p> <p><b>J. Show that an equality relationship between two quantities remains the same as long as the same change is made to both quantities; and explain how a change in one quantity determines another quantity in a functional relationship.</b></p>	<p>D. Solve systems of equations by substitution and elimination.</p>

6	7	8	9
			<p>K. Select, justify and an appropriate technique to graph a linear function in two variables, including slope-intercept, x- and y- intercepts, graphing by transformations, and the use of a graphing calculator.</p> <p>L. <b>Write the equations of a line when given the graph of the line, two points on the line, or the slope of the line and the point on the line.</b></p> <p>M. <b>Given a set of data points, write an equation for a line of best fit.</b></p>

**Pennsylvania Content Standards Grade Level Benchmarks**

**2.9. Geometry**

6	7	8	9
A. Draw (sketch), label and name points,	A. Draw, construct and label figures	<b>A. Construct figures incorporating</b>	A. Use a graphics calculator to model

6	7	8	9
<p>lines and planes and relationships (e.g., ray AB, AB, Describe the infinite set of points starting at A and extends in the direction of B).</p> <p>B. Identify and draw angles using a protractor.</p> <p>C. Identify, draw, label and classify regular polygons up to decagon.</p> <p style="padding-left: 20px;">A. Identify, draw and label circles, chords and arcs.</p> <p>D. Demonstrate the relationship between 2 and 3-D representations of a figure (e.g., scale, drawings, blueprints).</p> <p>E. Draw and apply properties of geometric figures (e.g. parallel, perpendicular, similar, congruent, symmetry).</p> <p>G. Recognize the value <math>\pi</math> and use it to determine the circumference and area of circle.</p>	<p>incorporating perpendicular and parallel lines, perpendicular bisector of a line segment and angle bisector using a protractor and compass.</p> <p>B. Identify, draw, label, measure, and list the properties of complementary, supplementary, vertical, and adjacent angles and use properties to determine missing angles.</p> <p>C. Draw, label, and classify polygons as regular or irregular up to decagon.</p> <p>D. Identify, name, draw, and list all properties of spheres, prisms, cylinders, and cones.</p> <p><b>E. Construct parallel lines, draw a transversal, measure and compare angles formed such as alternate interior and exterior angles.</b></p> <p><b>F. Distinguish between similar and congruent polygons.</b></p> <ul style="list-style-type: none"> <li>• Use the properties of congruence and similarity to find missing sides and angles.</li> </ul> <p><b>G. Approximate the value of <math>\pi</math> through experimentation.</b></p>	<p><b>perpendicular and parallel lines, the perpendicular bisector of a line segment and an angle bisector using computer software.</b></p> <p>B. <b>Draw, label, measure and list the properties of complementary, supplementary, and vertical angles.</b></p> <p><b>C. Classify familiar polygons as regular or irregular up to a decagon.</b></p> <p><b>D. Identify, name, draw and list all properties of squares, cubes, pyramids, parallelograms, quadrilaterals, trapezoids, polygons, rectangles, rhombi, circles, spheres, triangles, prisms, and cylinders.</b></p> <p><b>E. Construct parallel lines, draw a transversal, measure and compare angles formed such as alternate interior and exterior angles.</b></p> <p><b>F. Distinguish between similar and congruent polygons.</b></p> <p><b>G. Approximate the value of <math>\pi</math> through experimentation.</b></p>	<p>algebraic functions on a coordinate plane.</p> <p>B. Construct deductive proofs involving a coordinate system (e.g., use slope to prove that a quadrilateral is a rectangle).</p> <p>C. Calculate the areas of parallelograms, triangles, rhombi, trapezoids, regular polygons, and circles. Identify and name faces, edges and vertices of polyhedron. Describe and define properties of geometric solids.</p> <p>D. Solve problems involving the proportional relationship of corresponding parts of similar figures (polygons).</p> <p>G. Apply the properties of parallel and perpendicular lines, slope, distance, midpoint on a coordinate system to classify polygons.</p>

6	7	8	9
<p>H. Identify and classify prisms, pyramids, cylinders, cones, and spheres.</p> <p>I. Identify and complete drawings to illustrate slides, flips, and turns.</p> <p>J. <b>Analyze geometric patterns, such as tessellations and sequences of shapes, and develop descriptions of the patterns.</b></p> <p>K. <b>Analyze objects to determine if they illustrate tessellations, symmetry, congruence, similarity, and scale.</b></p>	<p>H. Find surface area and volumes of prisms, pyramids, cylinders, cones and spheres.</p> <p>I. Recognize, draw transformations of simple polygons (translations, rotations, reflections)</p> <p>J. <b>Analyze geometric patterns, such as tessellations and sequences of shapes, and develop descriptions of the patterns.</b></p> <p>K. <b>Analyze objects to determine if they illustrate tessellations, symmetry, congruence, similarity, and scale.</b></p>	<p><b>H. Use simple geometric figures such as triangles and squares to create, through rotation, transformational figures in three dimensions.</b></p> <p><b>I. Generate transformations using computer software.</b></p> <p>J. <b>Analyze geometric patterns, such as tessellations and sequences of shapes, and develop descriptions of the patterns.</b></p> <p>K. <b>Analyze objects to determine if they illustrate tessellations, symmetry, congruence, similarity, and scale.</b></p>	<p>H. Translate, reflect, rotate and dilate geometric shapes on a coordinate system.</p> <p>I. Use geometric models to solve equations (e.g., find x given a relationship in a pair of complementary or supplementary angles).</p> <p>J. Justify symmetry of shapes on a coordinate system (e.g., show a triangle is isosceles using a line of symmetry).</p>

6	7	8	9

**Pennsylvania Content Standards Grade Level Benchmarks**

**2.10. Trigonometry**

6	7	8	9
<p>A. Identify and represent right triangles in real-life applications through real and scale models.</p>	<p>A. State the Pythagorean Theorem and apply it to real world problems.</p> <p>B. Create and explain relationships in similar right triangle.</p>	<p><b>A. Compute measures of sides and angles using proportions, the Pythagorean Theorem, and right triangle relationships.</b></p> <p><b>B. Solve problems requiring indirect measurement for lengths of sides of triangles.</b></p>	

