

# BELVIDERE CLUSTER CURRICULUM MAP - Updated July 2019

**SUBJECT: Math**

**GRADE: Grade 8**

PACING-->	UNIT #1 5 Weeks (SEPTEMBER/OCTOBER)	UNIT #2 4 Weeks (OCTOBER/NOVEMBER)	UNIT #3 5 Weeks (DECEMBER/JANUARY)	UNIT #4 2 Weeks (JANUARY)
<b>TOPIC/THEME AND OBJECTIVES</b>	<p><b>Numbers and Operations</b>            Know that there are numbers that are not rational, and approximate them by rational numbers.            Expressions and Equations work with radicals and integer exponents.            Find the squares and square roots of both rational and irrational numbers.            Know the perfect squares. They will also be able to simplify perfect square radical expressions as well as non-perfect square radicands.            Use the perfect squares to approximate square roots.            Understand the properties of exponents and will use them to solve equations with perfect square and cube roots.</p> <ul style="list-style-type: none"> <li>• Use their understanding of square roots to simplify roots of variables.</li> <li>• Evaluate square and cube roots of perfect square and cubes to solve equations.</li> <li>• Expressions and equations work with radicals and integer exponents.</li> <li>• Express numbers using scientific notation.</li> <li>• Recognize the difference between scientific notation and standard form.</li> <li>• Distinguish the difference between different numbers written in scientific notation.</li> <li>• Solve equations with addition, subtraction, multiplication, and division using numbers</li> </ul>	<p><b>Solving Equations</b>            Analyze and solve linear equations and pairs of simultaneous linear equations.            Solve two-step equations.            Solve multiple-step equations.            Solve equations that contain fractions.            Solve equations that contain the same variable on both sides of the equation.            Simplify and compare algebraic expressions that contain the same variable.            Translate word problems into equations and solve them.</p> <ul style="list-style-type: none"> <li>• Expressions and Equations work with radicals and integer exponents.</li> </ul>	<p><b>Functions</b>            Define, evaluate, and compare functions.            Use functions to model relationships between quantities.            Understand what a function is and its corresponding graph.            Compare properties of different functions and relate the information to real world situations.            Graph slope-intercept form of a line.</p> <ul style="list-style-type: none"> <li>• Construct a function and determine the rate of change and initial value.</li> <li>• Describe a functional relationship by examining a graph.</li> </ul>	<p><b>Bi-Variate Data and Scatterplots</b></p> <ul style="list-style-type: none"> <li>• Investigate patterns of association in bivariate data.</li> <li>• Graph scatter plots.</li> <li>• Interpret and examine data to come to a conclusion.</li> <li>• Know about line of best fit and two variable data relationships.</li> <li>• Understand patterns of association in bivariate categorical data.</li> <li>• Use frequency to solve real life problems and make predictions for future ones.</li> </ul>

	in scientific notation.			
<p><b>ESSENTIAL QUESTIONS &amp; ENDURING UNDERSTANDINGS</b></p>	<ul style="list-style-type: none"> <li>• What is the difference between rational and irrational numbers?</li> <li>• Squares and Radicals can help solve real world problems.</li> <li>• Squares and Radicals affect the numbers that are being used within an operation.</li> <li>• Squares and Radicals affect the numbers that are being used within an operation.</li> <li>• The rules for radicals can be applied to variable expressions.</li> <li>• How will scientific notation help when writing numbers and equations?</li> <li>• How is scientific notation used in real world application problems?</li> <li>• How numbers are compared and manipulated using scientific notation?</li> <li>• Scientific notation will help demonstrate very large and very small numbers when solving real world application problems.</li> <li>• Numbers can be represented in scientific notation and still be manipulated using operations such as addition, subtraction, multiplication, and division.</li> </ul>	<ul style="list-style-type: none"> <li>• How can the value of an unknown variable be found?</li> <li>• How to solve an equation in one variable for that variable.</li> <li>• How to translate word problems into an equation.</li> <li>• How do radicals and squares help solve real world problems?</li> <li>• How are radicals and squares useful for solving equations and manipulating numbers?</li> <li>• Squares and Radicals can help solve real world problems.</li> </ul>	<ul style="list-style-type: none"> <li>• What is a function?</li> <li>• How are functions represented?</li> <li>• What can a relationship between numbers tell about a problem?</li> <li>• Properties of functions and their graphs are similar but not identical.</li> <li>• Slope-intercept form is an easy way of graphing functions.</li> <li>• Are properties of functions and graphs the same for all functions?</li> <li>• The definition of a function and what it's graph represents. The ability to graph a function and write a function from a graph.</li> </ul>	<ul style="list-style-type: none"> <li>• How can information from a problem be represented in a way to see a pattern or a frequency?</li> <li>• What is a line of best fit and how can it simply a conclusion?</li> <li>• Are interpretation and prediction an accurate conclusion for a problem?</li> <li>• Scatter plots, line of best fit, and frequencies all help interpret data within a problem.</li> <li>• Patterns can be modeled using different graphs.</li> <li>• Straight lines are widely used to model relationships.</li> </ul>

STANDARDS	<p><b>8.NS.A.1</b> Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.</p> <p><b>8.NS.A.2</b> Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., <math>p^2</math>). For example, by truncating the decimal expansion of <math>\sqrt{2}</math>, show that <math>\sqrt{2}</math> is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.</p> <p><b>8.EE.A.1</b> Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, <math>3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27</math>.</p> <p><b>8.EE.A.2</b> Use square root and cube root symbols to represent solutions to equations of the form <math>x^2 = p</math> and <math>x^3 = p</math>, where <math>p</math> is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that <math>\sqrt{2}</math> is irrational.</p> <p><b>8.EE.A.3</b> Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as</p>	<p><b>8.EE.C.7</b> <b>Solve linear equations in one variable.</b> 8EE.C.7a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form <math>x = a</math>, <math>a = a</math>, or <math>a = b</math> results (where <math>a</math> and <math>b</math> are different numbers).</p> <p>8.EE.C.7b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p> <p><b>8.EE.A.2</b> <b>Use square root and cube root symbols to represent solutions to equations of the form <math>x^2 = p</math> and <math>x^3 = p</math>, where <math>p</math> is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that <math>\sqrt{2}</math> is irrational.</b></p>	<p><b>8.F.A.1</b> Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.</p> <p><b>8.F.A.3</b> Interpret the equation <math>y = mx + b</math> as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function <math>A = s^2</math> giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.</p> <p><b>8.F.B.5</b> Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.</p> <p><b>8.F.A.2</b> Compare properties (e.g. rate of change, intercepts, domain and range) of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.</p>	<p><b>8.SP.A.1</b> Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.</p> <p><b>8.SP.A.2</b> Know that straight lines are widely used to model positive or negative association, linear association, and nonlinear association.</p> <p><b>8.SP.A.2</b> Know that straight lines are widely used to model positive or negative association, linear association, and nonlinear association.</p> <p><b>8.F.B.4</b> Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two <math>(x, y)</math> values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.</p>

much one is than the other. For example, estimate the population of the United States as  $3 \times 10^8$  and the population of the world as  $7 \times 10^9$ , and determine that the world population is more than 20 times larger.

**8.EE.A.4**

Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

<p><b>INSTRUCTIONAL PROCEDURES</b></p>	<p><b>Whole Group</b>          -Introduction to check for previous understanding          -Class Discussion          -Structured Notes and Examples</p> <p><b>Individual</b>          -Provide opportunity for individual practice          -Tiered level questions</p> <p><b>Small Groups</b>          Partner work          Mini Lesson          Use of manipulatives          Centers          Investigations</p>	<p><b>Whole Group</b>          -Introduction to check for previous understanding          -Class Discussion          -Structured Notes and Examples</p> <p><b>Individual</b>          -Provide opportunity for individual practice          -Tiered level questions</p> <p><b>Small Groups</b>          Partner work          Mini Lesson          Use of manipulatives          Centers          Investigations</p>	<p><b>Whole Group</b>          -Introduction to check for previous understanding          -Class Discussion          -Structured Notes and Examples</p> <p><b>Individual</b>          -Provide opportunity for individual practice          -Tiered level questions</p> <p><b>Small Groups</b>          Partner work          Mini Lesson          Use of manipulatives          Centers          Investigations</p>	<p><b>Whole Group</b>          -Introduction to check for previous understanding          -Class Discussion          -Structured Notes and Examples</p> <p><b>Individual</b>          -Provide opportunity for individual practice          -Tiered level questions</p> <p><b>Small Groups</b>          Partner work          Mini Lesson          Use of manipulatives          Centers          Investigations</p>
<p><b>INSTRUCTIONAL AND SUPPLEMENTAL MATERIALS/ LEVELED TEXTS</b></p>	<p><b>Materials</b></p> <p><u>Belvidere</u>          Envision 2.0          IXL          First in Math          Teacher created materials and assessments</p> <p>Hope:          -Teacher created materials and assessments          -nwea MAP testing          -kahnacademy.com</p> <p><b>Harmony</b>          GoMath text books          GoMath consumable workbooks          Personal Math Trainer          Animated Math          IXL          Teacher created materials and assessments          Scholastic Math Reads</p> <p>White:          -Pearson -Mathematics course 3</p>	<p><b>Materials</b></p> <p><u>Belvidere</u>          Envision 2.0          IXL          First in Math          Teacher created materials and assessments</p> <p>Hope:          -Teacher created materials and assessments          -nwea MAP testing          -kahnacademy.com</p> <p><b>Harmony</b>          GoMath text books          GoMath consumable workbooks          Personal Math Trainer          Animated Math          IXL          Teacher created materials and assessments          Scholastic Math Reads</p> <p>White:          -Pearson -Mathematics course 3</p>	<p><b>Materials</b></p> <p><u>Belvidere</u>          Envision 2.0          IXL          First in Math          Teacher created materials and assessments</p> <p>Hope:          -Teacher created materials and assessments          -nwea MAP testing          -kahnacademy.com</p> <p><b>Harmony</b>          GoMath text books          GoMath consumable workbooks          Personal Math Trainer          Animated Math          IXL          Teacher created materials and assessments          Scholastic Math Reads</p> <p>White:          -Pearson -Mathematics course 3</p>	<p><b>Materials</b></p> <p><u>Belvidere</u>          Envision 2.0          IXL          First in Math          Teacher created materials and assessments</p> <p>Hope:          -Teacher created materials and assessments          -nwea MAP testing          -kahnacademy.com</p> <p><b>Harmony</b>          GoMath text books          GoMath consumable workbooks          Personal Math Trainer          Animated Math          IXL          Teacher created materials and assessments          Scholastic Math Reads</p> <p>White:          -Pearson -Mathematics course 3</p>

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<b>ASSESSMENTS</b>	<p><b>Formative</b> Quizzes Homework/classwork Q and A Labs/Projects IXL.com Firstinmath.com</p> <p><b>Summative</b> Unit Test</p> <p><b>Benchmark</b> Unit Assessment MAP Assessment Easy CBM ADAM</p> <p><b>Alternative</b> Choice boards - projects Skit Demonstration Journaling Self Assessment Conferencing</p>	<p><b>Formative</b> Quizzes Homework/classwork Q and A Labs/Projects IXL.com Firstinmath.com</p> <p><b>Summative</b> Unit Test</p> <p><b>Benchmark</b> Unit Assessment MAP Assessment Easy CBM ADAM</p> <p><b>Alternative</b> Choice boards - projects Skit Demonstration Journaling Self Assessment Conferencing</p>	<p><b>Formative</b> Quizzes Homework/classwork Q and A Labs/Projects IXL.com Firstinmath.com</p> <p><b>Summative</b> Unit Test</p> <p><b>Benchmark</b> Unit Assessment MAP Assessment Easy CBM ADAM</p> <p><b>Alternative</b> Choice boards - projects Skit Demonstration Journaling Self Assessment Conferencing</p>	<p><b>Formative</b> Quizzes Homework/classwork Q and A Labs/Projects IXL.com Firstinmath.com</p> <p><b>Summative</b> Unit Test</p> <p><b>Benchmark</b> Unit Assessment MAP Assessment Easy CBM ADAM</p> <p><b>Alternative</b> Choice boards - projects Skit Demonstration Journaling Self Assessment Conferencing</p>
	<p><b>Special Education</b> Printed copy of board work/notes provided Extended time on tests/ quizzes Behavior management plan Highlighted text visual presentation Modified test content, format, or length Multi-sensory presentation Preview of content, concepts, and vocabulary Shortened assignments Use open book, study guides, test prototypes Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Think-Pair-Share</p>	<p><b>Special Education</b> Printed copy of board work/notes provided Extended time on tests/ quizzes Behavior management plan Highlighted text visual presentation Modified test content, format, or length Multi-sensory presentation Preview of content, concepts, and vocabulary Shortened assignments Use open book, study guides, test prototypes Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Think-Pair-Share</p>	<p><b>Special Education</b> Printed copy of board work/notes provided Extended time on tests/ quizzes Behavior management plan Highlighted text visual presentation Modified test content, format, or length Multi-sensory presentation Preview of content, concepts, and vocabulary Shortened assignments Use open book, study guides, test prototypes Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Think-Pair-Share</p>	<p><b>Special Education</b> Printed copy of board work/notes provided Extended time on tests/ quizzes Behavior management plan Highlighted text visual presentation Modified test content, format, or length Multi-sensory presentation Preview of content, concepts, and vocabulary Shortened assignments Use open book, study guides, test prototypes Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Think-Pair-Share</p>

<p>Varied supplemental materials</p> <p><b>ELL</b></p> <ul style="list-style-type: none"> <li>Allowing students to correct errors (looking for understanding)</li> <li>Teaching key aspects of a topic</li> <li>Eliminate nonessential information Using videos, illustrations, pictures, and drawings to explain or clarify</li> <li>allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slideshows, videos, etc.) to demonstrate student's learning</li> <li>Decreasing the amount of work presented or required</li> <li>Having peers take notes or providing a copy of the teacher's notes</li> <li>Reducing the number of answer choices on a multiple choice test Using true/false, matching, or fill in the blank tests in lieu of essay tests</li> </ul> <p><b>At Risk</b></p> <ul style="list-style-type: none"> <li>Allowing the use of notes or open-book during testing</li> <li>Collaborating (general education teacher and specialist) to modify 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<p><b>INTERDISCIPLINARY CONNECTIONS</b></p> <p><b>21ST CENTURY SKILLS/THEMES (P21.ORG)</b></p> <p><b>TECHNOLOGY INTEGRATION</b></p> <p><b>CAREER EDUCATION (NJDOE CTE Clusters)</b></p>	<p><b>Interdisciplinary Connections</b></p> <ul style="list-style-type: none"> <li>-English Language Arts</li> <li>-Science and Scientific Inquiry (Next Generation)</li> <li>-Social Studies, including American History, World History, Geography, Government and Civics, and Economics</li> <li>-Technology</li> <li>-Visual and Performing Arts</li> <li>-World languages</li> </ul> <p><b>21st Century Skills/ Themes</b></p> <ul style="list-style-type: none"> <li>Global Awareness</li> <li>Financial, Economic, Business and Entrepreneurial Literacy</li> <li>Civic Literacy</li> <li>Health Literacy</li> <li>Environmental Literacy</li> <li>Creativity and Innovation</li> <li>Critical Thinking</li> <li>Problem Solving</li> <li>Communication</li> <li>Collaboration</li> <li>Information Literacy</li> <li>Media Literacy</li> <li>ICT (Information, Communication and Technology) Literacy</li> </ul> <p><b>Technology Integration</b></p> <p>IXL</p> <p>First in Math</p> <p>Kahn Academy</p> <p>Online Resources provided through textbook</p> <p>Math on the Spot Videos</p> <p>Animated Math</p> <p>Coolmath</p> <p><b>Career Education</b></p> <ul style="list-style-type: none"> <li>Agriculture, Food &amp; Natural Resources</li> <li>Architecture &amp; Construction</li> <li>Arts, A/V Technology &amp; Communications</li> <li>Business Management &amp; Administration</li> <li>Education &amp; Training</li> </ul>	<p><b>Interdisciplinary Connections</b></p> <ul style="list-style-type: none"> <li>English Language Arts</li> <li>Science and Scientific Inquiry (Next Generation)</li> <li>Social Studies, including American History, World History, Geography, Government and Civics, and Economics</li> <li>Technology</li> <li>Visual and Performing Arts</li> <li>World languages</li> </ul> <p><b>21st Century Skills/ Themes</b></p> <ul style="list-style-type: none"> <li>Global Awareness</li> <li>Financial, Economic, Business and Entrepreneurial Literacy</li> <li>Civic Literacy</li> <li>Health Literacy</li> <li>Environmental Literacy</li> <li>Creativity and Innovation</li> <li>Critical Thinking</li> <li>Problem Solving</li> <li>Communication</li> <li>Collaboration</li> <li>Information Literacy</li> <li>Media Literacy</li> <li>ICT (Information, Communication and Technology) Literacy</li> </ul> <p><b>Technology Integration</b></p> <p>IXL</p> <p>First in Math</p> <p>Kahn Academy</p> <p>Online Resources provided through textbook</p> <p>Math on the Spot Videos</p> <p>Animated Math</p> <p>Coolmath</p>	<p><b>Interdisciplinary Connections</b></p> <ul style="list-style-type: none"> <li>English Language Arts</li> <li>Science and Scientific Inquiry (Next Generation)</li> <li>Social Studies, including American History, World History, Geography, Government and Civics, and Economics</li> <li>Technology</li> <li>Visual and Performing Arts</li> <li>World languages</li> </ul> <p><b>21st Century Skills/ Themes</b></p> <ul style="list-style-type: none"> <li>Global Awareness</li> <li>Financial, Economic, Business and Entrepreneurial Literacy</li> <li>Civic Literacy</li> <li>Health Literacy</li> <li>Environmental Literacy</li> <li>Creativity and Innovation</li> <li>Critical Thinking</li> <li>Problem Solving</li> <li>Communication</li> <li>Collaboration</li> <li>Information Literacy</li> <li>Media Literacy</li> <li>ICT (Information, Communication and Technology) Literacy</li> </ul> <p><b>Technology Integration</b></p> <p>IXL</p> <p>First in Math</p> <p>Kahn Academy</p> <p>Online Resources provided through textbook</p> <p>Math on the Spot Videos</p> <p>Animated Math</p> <p>Coolmath</p> <p><b>Career Education</b></p>	<p><b>Interdisciplinary Connections</b></p> <ul style="list-style-type: none"> <li>English Language Arts</li> <li>Science and Scientific Inquiry (Next Generation)</li> <li>Social Studies, including American History, World History, Geography, Government and Civics, and Economics</li> <li>Technology</li> <li>Visual and Performing Arts</li> <li>World languages</li> </ul> <p><b>21st Century Skills/ Themes</b></p> <ul style="list-style-type: none"> <li>Global Awareness</li> <li>Financial, Economic, Business and Entrepreneurial Literacy</li> <li>Civic Literacy</li> <li>Health Literacy</li> <li>Environmental Literacy</li> <li>Creativity and Innovation</li> <li>Critical Thinking</li> <li>Problem Solving</li> <li>Communication</li> <li>Collaboration</li> <li>Information Literacy</li> <li>Media Literacy</li> <li>ICT (Information, Communication and Technology) Literacy</li> </ul> <p><b>Technology Integration</b></p> <p>IXL</p> <p>First in Math</p> <p>Kahn Academy</p> <p>Online Resources provided through textbook</p> <p>Math on the Spot Videos</p> <p>Animated Math</p> <p>Coolmath</p>
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	Finance Government & Public Administration Health Science Hospitality & Tourism Human Services Information Technology Law, Public Safety, Corrections & Security Manufacturing Marketing Science, Technology, Engineering & Mathematics (STEM) Transportation, Distribution & Logistics	<b>Career Education</b> Agriculture, Food & Natural Resources Architecture & Construction Arts, A/V Technology & Communications Business Management & Administration Education & Training Finance Government & Public Administration Health Science Hospitality & Tourism Human Services Information Technology Law, Public Safety, Corrections & Security Manufacturing Marketing Science, Technology, Engineering & Mathematics (STEM) Transportation, Distribution & Logistics	Agriculture, Food & Natural Resources Architecture & Construction Arts, A/V Technology & Communications Business Management & Administration Education & Training Finance Government & Public Administration Health Science Hospitality & Tourism Human Services Information Technology Law, Public Safety, Corrections & Security Manufacturing Marketing Science, Technology, Engineering & Mathematics (STEM) Transportation, Distribution & Logistics	<b>Career Education</b> Agriculture, Food & Natural Resources Architecture & Construction Arts, A/V Technology & Communications Business Management & Administration Education & Training Finance Government & Public Administration Health Science Hospitality & Tourism Human Services Information Technology Law, Public Safety, Corrections & Security Manufacturing Marketing Science, Technology, Engineering & Mathematics (STEM) Transportation, Distribution & Logistics
<b>PACING--&gt;</b>	<b>UNIT #5 3 Weeks (FEBRUARY)</b>	<b>UNIT #6 6 Weeks (MARCH/APRIL)</b>	<b>UNIT #7 6 Weeks (APRIL/MAY)</b>	
<b>TOPIC/THEME AND OBJECTIVES</b>	<b>Systems of Equations</b> Analyze and solve linear equations and pairs of simultaneous linear equations. Graph systems of linear equations to find a solution. Solve a system of equations by using substitution and elimination. Translate real world problem into a system.	<b>Transformations and Angle Relationships</b> Understand congruence and similarity using physical models, transparencies, or geometry software. Transform figures on a coordinate plane. Use their understanding of angle relationships to find unknown angles. Describe a sequence of transformations that will result in congruent figures. Describe a sequence of transformations and dilations that will result in similar figures. Identify relationships between angles formed when two parallel lines are cut by a	<b>Measurement</b> <ul style="list-style-type: none"> <li>Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.</li> <li>Identify what a 3-dimensional figure is.</li> <li>Use a formula to find the volume of a prism and cylinder.</li> <li>Use a formula to find the volume of pyramids, cones &amp; spheres.</li> <li>Understand the Pythagorean Theorem and its converse.</li> <li>Given two sides of a right triangle, use the Pythagorean Theorem to find the third side.</li> </ul>	

		<p>transversal. Determine the measures of angles formed by parallel lines cut by a transversal Write and solve algebraic equations to find missing angle measures</p>	<ul style="list-style-type: none"> <li>• Use the Pythagorean Theorem to determine if a given triangle is a right triangle.</li> <li>• Apply the Pythagorean Theorem to solve problems that involve three dimensions</li> <li>• Apply the Pythagorean Theorem to solve real-world problems</li> <li>• Find the distance between two points on coordinate plane</li> <li>• Find perimeter of 2-d figures on coordinate plane using Pythagorean theorem.</li> </ul>	
<p><b>ESSENTIAL QUESTIONS &amp; ENDURING UNDERSTANDINGS</b></p>	<ul style="list-style-type: none"> <li>• How can real world situations be modeled by systems? How can solutions be found to a system?</li> <li>• The point at which lines intersect is the solution to the system with those lines.</li> </ul>	<ul style="list-style-type: none"> <li>• How can you use models of one and two-dimensional figures to show congruent figures?</li> <li>• How can you use models of one and two-dimensional figures to show similar figures?</li> <li>• Congruent figures can be formed by a series of transformations.</li> <li>• Similar figures can be formed by a series of transformations.</li> <li>• Understand angle relationships in one and two-dimensional figures.</li> <li>• How are angle relationships effected by parallel lines and a transversal.</li> </ul>	<ul style="list-style-type: none"> <li>• What is a 3-dimensional figure?</li> <li>• How can I find the volume of a 3-dimensional figure?</li> <li>• How can the volume of a 3-dimensional figure help me solve real world problems?</li> <li>• There are different formulas that can be used when solving for the volume of a 3-dimensional figure.</li> <li>• How would you use the Pythagorean Theorem to solve problems, find unknown side lengths of right triangles.</li> </ul>	
<p><b>STANDARDS</b></p>	<p><b>8.EE.C.8</b> <b>Analyze and solve pairs of simultaneous linear equations.</b> 8.EE.C.8a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.</p> <p>8.EE.C.8b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. <i>For example, <math>3x + 2y</math></i></p>	<p><b>8.G.A.1</b> <b>Verify experimentally the properties of rotations, reflections, and translations:</b> 8.G.A.1a. Lines are <b>transformed</b> to lines, and line segments to line segments of the same length.</p> <p>8.G.A.1b. Angles are <b>transformed</b> to angles of the same measure.</p> <p>8.G.A.1c. Parallel lines are <b>transformed</b> to parallel lines.</p> <p><b>8.G.A.2</b> <b>Understand that a two-dimensional figure is congruent to another if the</b></p>	<p><b>8.G.C.9</b> <b>Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</b></p> <p><b>8.SP.A.3</b> <b>Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an</b></p>	

	<p><math>= 5</math> and <math>3x + 2y = 6</math> have no solution because <math>3x + 2y</math> cannot simultaneously be 5 and 6.</p> <p>8.EE.C.8c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair. winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be</p>	<p>second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.</p> <p><b>8.G.A.3</b> Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p><b>8.G.A.4</b> Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.</p> <p><b>8.G.A.5</b> Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</p>	<p>additional 1.5 cm in mature plant height.</p> <p><b>8.8.G.B</b> Understand and apply Pythagorean Theorem.</p> <p><b>8.G.B6</b> Explain a proof of the Pythagorean Theorem and its converse.</p> <p><b>8.G.B7</b> Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems in 2 and 3 dimensions</p> <p><b>8.G.B8</b> Apply the Pythagorean Theorem to find the distance between 2 points in a coordinate system</p>	
<p><b>INSTRUCTIONAL PROCEDURES</b></p>	<p><b>Whole Group</b> -Introduction to check for previous understanding -Class Discussion -Structured Notes and Examples</p> <p><b>Individual</b> -Provide opportunity for individual practice -Tiered level questions</p>	<p><b>Whole Group</b> -Introduction to check for previous understanding -Class Discussion -Structured Notes and Examples</p> <p><b>Individual</b> -Provide opportunity for individual practice -Tiered level questions</p>	<p><b>Whole Group</b> -Introduction to check for previous understanding -Class Discussion -Structured Notes and Examples</p> <p><b>Individual</b> -Provide opportunity for individual practice -Tiered level questions</p>	

	<p><b>Small Groups</b>  Partner work  Mini Lesson  Use of manipulatives  Centers  Investigations</p>	<p><b>Small Groups</b>  Partner work  Mini Lesson  Use of manipulatives  Centers  Investigations</p>	<p><b>Small Groups</b>  Partner work  Mini Lesson  Use of manipulatives  Centers  Investigations</p>	
<p><b>INSTRUCTIONAL AND SUPPLEMENTAL MATERIALS/ LEVELED TEXTS</b></p>	<p><b>Materials</b>  Belvidere  Envision 2.0  IXL  First in Math  Teacher created materials and assessments</p> <p>Hope:  -Teacher created materials and assessments  -nwea MAP testing  -kahnacademy.com</p> <p><b>Harmony</b>  GoMath text books  GoMath consumable workbooks  Personal Math Trainer  Animated Math  IXL  Teacher created materials and assessments  Scholastic Math Reads</p> <p>White:  -Pearson -Mathematics course 3</p> <p><b>Leveled Questions</b>  Problems to be tiered and assigned based on students' readiness level.</p>	<p><b>Materials</b>  Belvidere  Envision 2.0  IXL  First in Math  Teacher created materials and assessments</p> <p>Hope:  -Teacher created materials and assessments  -nwea MAP testing  -kahnacademy.com</p> <p><b>Harmony</b>  GoMath text books  GoMath consumable workbooks  Personal Math Trainer  Animated Math  IXL  Teacher created materials and assessments  Scholastic Math Reads</p> <p>White:  -Pearson -Mathematics course 3</p> <p><b>Leveled Questions</b>  Problems to be tiered and assigned based on students' readiness level.</p>	<p><b>Materials</b>  Belvidere  Envision 2.0  IXL  First in Math  Teacher created materials and assessments</p> <p>Hope:  -Teacher created materials and assessments  -nwea MAP testing  -kahnacademy.com</p> <p><b>Harmony</b>  GoMath text books  GoMath consumable workbooks  Personal Math Trainer  Animated Math  IXL  Teacher created materials and assessments  Scholastic Math Reads</p> <p>White:  -Pearson -Mathematics course 3</p> <p><b>Leveled Questions</b>  Problems to be tiered and assigned based on students' readiness level.</p>	
<p><b>ASSESSMENTS</b></p>	<p><b>Formative</b>  Quizzes  Homework/classwork  Q and A  Labs/Projects</p>	<p><b>Formative</b>  Quizzes  Homework/classwork  Q and A  Labs/Projects</p>	<p><b>Formative</b>  Quizzes  Homework/classwork  Q and A  Labs/Projects</p>	

	<p>IXL.com Firstinmath.com</p> <p><b>Summative</b> Unit Test <b>Benchmark</b> Unit Assessment MAP Assessment Easy CBM ADAM</p> <p><b>Alternative</b> Choice boards - projects Skit Demonstration Journaling Self Assessment Conferencing</p>	<p>IXL.com Firstinmath.com</p> <p><b>Summative</b> Unit Test <b>Benchmark</b> Unit Assessment MAP Assessment Easy CBM ADAM</p> <p><b>Alternative</b> Choice boards - projects Skit Demonstration Journaling Self Assessment Conferencing</p>	<p>IXL.com Firstinmath.com</p> <p><b>Summative</b> Unit Test <b>Benchmark</b> Unit Assessment MAP Assessment Easy CBM ADAM</p> <p><b>Alternative</b> Choice boards - projects Skit Demonstration Journaling Self Assessment Conferencing</p>	
<p><b>ACCOMMODATIONS</b></p>	<p><b>Special Education</b> Printed copy of board work/notes provided Extended time on tests/ quizzes Behavior management plan Highlighted text visual presentation Modified test content, format, or length Multi-sensory presentation Preview of content, concepts, and vocabulary Shortened assignments Use open book, study guides, test prototypes Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Think-Pair-Share Varied supplemental materials</p> <p><b>ELL</b> Allowing students to correct errors (looking for understanding) Teaching key aspects of a topic Eliminate nonessential information Using videos, illustrations, pictures, and drawings to explain or clarify allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slideshows, videos, etc.) to</p>	<p><b>Special Education</b> Printed copy of board work/notes provided Extended time on tests/ quizzes Behavior management plan Highlighted text visual presentation Modified test content, format, or length Multi-sensory presentation Preview of content, concepts, and vocabulary Shortened assignments Use open book, study guides, test prototypes Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Think-Pair-Share Varied supplemental materials</p> <p><b>ELL</b> Allowing students to correct errors (looking for understanding) Teaching key aspects of a topic Eliminate nonessential information Using videos, illustrations, pictures, and drawings to explain or clarify allowing products (projects, timelines, demonstrations, models, drawings, dioramas,</p>	<p><b>Special Education</b> Printed copy of board work/notes provided Extended time on tests/ quizzes Behavior management plan Highlighted text visual presentation Modified test content, format, or length Multi-sensory presentation Preview of content, concepts, and vocabulary Shortened assignments Use open book, study guides, test prototypes Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Think-Pair-Share Varied supplemental materials</p> <p><b>ELL</b> Allowing students to correct errors (looking for understanding) Teaching key aspects of a topic Eliminate nonessential information Using videos, illustrations, pictures, and drawings to explain or clarify allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slideshows, videos, etc.) to</p>	

	<p>demonstrate student's learning Decreasing the amount of work presented or required Having peers take notes or providing a copy of the teacher's notes Reducing the number of answer choices on a multiple choice test Using true/false, matching, or fill in the blank tests in lieu of essay tests</p> <p><b>At Risk</b></p> <p>Allowing the use of notes or open-book during testing Collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test decreasing the amount of work presented or required . Providing study guides Tutoring by peers Using authentic assessments with real-life problem-solving Using true/false, matching, or fill in the blank tests in lieu of essay tests using videos, illustrations, pictures, and drawings to explain or clarify Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Varied supplemental materials</p> <p><b>Gifted and Talented</b></p> <p>Alternative formative and summative assessments Choice boards Games and tournaments Group investigations Independent projects Learning contracts Multiple intelligence options Personal agendas Project-based learning Problem-based learning Stations/centers Varying organizers for instructions</p>	<p>poster boards, charts, graphs, slideshows, videos, etc.) to demonstrate student's learning Decreasing the amount of work presented or required Having peers take notes or providing a copy of the teacher's notes Reducing the number of answer choices on a multiple choice test Using true/false, matching, or fill in the blank tests in lieu of essay tests</p> <p><b>At Risk</b></p> <p>Allowing the use of notes or open-book during testing Collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test decreasing the amount of work presented or required . Providing study guides Tutoring by peers Using authentic assessments with real-life problem-solving Using true/false, matching, or fill in the blank tests in lieu of essay tests using videos, illustrations, pictures, and drawings to explain or clarify Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Varied supplemental materials</p> <p><b>Gifted and Talented</b></p> <p>Alternative formative and summative assessments Choice boards Games and tournaments Group investigations Independent projects Learning contracts Multiple intelligence options Personal agendas Project-based learning Problem-based learning Stations/centers</p>	<p>demonstrate student's learning Decreasing the amount of work presented or required Having peers take notes or providing a copy of the teacher's notes Reducing the number of answer choices on a multiple choice test Using true/false, matching, or fill in the blank tests in lieu of essay tests</p> <p><b>At Risk</b></p> <p>Allowing the use of notes or open-book during testing Collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test decreasing the amount of work presented or required . Providing study guides Tutoring by peers Using authentic assessments with real-life problem-solving Using true/false, matching, or fill in the blank tests in lieu of essay tests using videos, illustrations, pictures, and drawings to explain or clarify Flexible grouping Goal setting with students Mini workshops to re-teach or extend skills Open-ended activities Varied supplemental materials</p> <p><b>Gifted and Talented</b></p> <p>Alternative formative and summative assessments Choice boards Games and tournaments Group investigations Independent projects Learning contracts Multiple intelligence options Personal agendas Project-based learning Problem-based learning Stations/centers Varying organizers for instructions</p>	
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Critical Thinking  
Problem Solving  
Communication  
Collaboration  
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ICT (Information,  
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IXL  
First in Math  
Kahn Academy  
Online Resources provided  
through textbook  
Math on the Spot Videos  
Animated Math  
Coolmath

**Career Education**

Agriculture, Food & Natural  
Resources  
Architecture &  
Construction  
Arts, A/V Technology &  
Communications  
Business Management &  
Administration  
Education & Training  
Finance  
Government & Public  
Administration  
Health Science  
Hospitality & Tourism  
Human Services  
Information Technology  
Law, Public Safety,  
Corrections & Security  
Manufacturing  
Marketing  
Science, Technology,  
Engineering &  
Mathematics (STEM)  
Transportation,  
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