



Saddlebrook Preparatory School

Curriculum Map- Scope and Sequence:

**\*8<sup>th</sup> Grade Pre-Algebra**

Purpose of Planning	Unit One <b>*Quarter 1/Weeks 1-6</b>	Unit Two <b>*Quarter 1-2/Weeks 7-11</b>	Unit Three <b>*Quarter 2/Weeks 12-15</b>	Unit Four <b>*Quarter 2/Weeks 16-18</b>	Unit Five <b>*Quarter 3/Weeks 19-21</b>
Unit Topic and Overview:	<b>*Rational Numbers and Percent *Real Numbers and Monomials</b>	<b>*Equations and Inequalities *Multi-Step Equations and Inequalities</b>	<b>*Expressions and Functions</b>	<b>*Linear Functions and Systems of Equations</b>	<b>*Two-and Three-Dimensional Geometry</b>
Prerequisite Student Knowledge *What should students have previously mastered prior to this unit?	Students should be able to compare and order positive and negative fractions, mixed numbers, decimals, and percents.	Students should be able to solve one- and two-step linear equations. Students should be able to apply properties to simplify expressions, and solve multi-step equations and inequalities.	Students should be able to write and evaluate algebraic expressions for a given situation using up to three variables.	Students should be able to graph proportional relationships and identify the unit rate as the slope of the related linear function.	Students should be able to classify polygons.



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<p><b>Essential Knowledge &amp; Student Expectations</b> *What are the anticipated learning outcomes for students?</p>	<p><b>*Add and Subtract Rational Numbers</b>  <b>*Multiply and Divide Rational Numbers</b>  <b>*Multiply and Divide Monomials</b>  <b>*Powers of Monomials</b>  <b>*Negative Exponents</b>  <b>*Scientific Notation</b>  <b>*Roots</b>  <b>*Estimate Roots</b>  <b>*Compare Real Numbers</b></p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>1. Perform operations on real numbers.</li> <li>2. Solve percent problems with proportions or equations.</li> <li>3. Solve real-world percent problems involving discount, markup, sales tax, and simple compound interest.</li> <li>4. Solve problems with percent of increase and decrease.</li> </ol>	<p><b>*Solve Equations with Rational Coefficients</b>  <b>*Solve Addition and Subtraction Equations</b>  <b>*Solve Multiplication and Division Equations</b>  <b>*Solve Two-Step Equations</b>  <b>*The Distributive Property</b>  <b>*Solve Equations with Variables on Each Side</b>  <b>*Solve Multi-Step Equations</b></p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>1. Write and solve one- and two-step equations.</li> <li>2. Solve one- and two-step inequalities.</li> <li>3. Solve Compound Inequalities.</li> <li>4. Symbolically represent and solve real-world situations that involve linear equations and inequalities.</li> <li>5. Apply the Distributive, Associative, and Commutative Properties to simplify algebraic expressions.</li> <li>6. Solve multi-step equations and inequalities.</li> </ol>	<p><b>*Ordered Pairs and Relations</b>  <b>*Two-Way Tables</b>  <b>*Analyze Tables</b>  <b>*Analyze Graphs</b>  <b>*Translate Tables and Graphs into Equations</b>  <b>*Functions</b>  <b>*Linear Functions</b>  <b>*Nonlinear Functions</b>  <b>*Linear and nonlinear Associations</b>  <b>*Graph Quadratic Functions</b>  <b>*Families of Nonlinear Functions</b></p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>1. Create and interpret tables, graphs, and models to represent, analyze, and solve problems related to linear equations.</li> <li>2. Analyze domain and range.</li> <li>3. Discriminate between discrete and continuous data.</li> <li>4. Given a table, graph, or verbal description, write an equation.</li> </ol>	<p><b>*Constant Rate of Change</b>  <b>*Construct Functions</b>  <b>*Slope</b>  <b>*Investigating Linear Equations</b>  <b>*Proportional and Non-proportional Relationships</b>  <b>*Direct Variation</b>  <b>*Slope-Intercept Form</b>  <b>*Compare Properties of Functions</b>  <b>*Graph Functions Using Intercepts</b>  <b>*Model Linear Behavior</b>  <b>*Qualitative Graphs</b>  <b>*Systems of Equations</b></p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>1. Find the rate of change to distinguish proportional and non-proportional relationships.</li> <li>2. Solve multi-step problems involving direct variation.</li> <li>3. Find and interpret the slope and x- and y-intercepts when graphing a linear equation for a real world problem.</li> </ol>	<p><b>*Use Logical Reasoning</b>  <b>*Parallel Lines</b>  <b>*Lines</b>  <b>*Triangles</b></p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>1. Identify and determine the measures of angles that are complementary and supplementary.</li> <li>2. Solve problems involving angles created by parallel lines cut by transversals: vertical, alternate interior, alternate exterior and corresponding angles.</li> <li>3. Demonstrate that the sum of the angles in a triangle is 180 degrees.</li> <li>4. Find measures of unknown angles and the sum of angles in polygons.</li> <li>5. Construct three-dimensional models given the top, side, and front views.</li> </ol>
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<p><b>Anchor Text and Supplemental Texts</b>          *Illustrate texts used, and how students' knowledge builds across units.</p>	Glencoe McGraw-Hill <i>Math Connects Course 3</i>	Glencoe McGraw-Hill <i>Math Connects Course 3</i>	Glencoe McGraw-Hill <i>Math Connects Course 3</i>	Glencoe McGraw-Hill <i>Math Connects Course 3</i>	Glencoe McGraw-Hill <i>Math Connects Course 3</i>
<p><b>Multi-Media Links:</b>          *Videos, presentations, any and all supplemental online material.</p>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a> <a href="http://www.ixl.com">www.ixl.com</a> <a href="http://www.khanacademy.org">www.khanacademy.org</a> <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a> <a href="http://www.ixl.com">www.ixl.com</a> <a href="http://www.khanacademy.org">www.khanacademy.org</a> <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a> <a href="http://www.ixl.com">www.ixl.com</a> <a href="http://www.khanacademy.org">www.khanacademy.org</a> <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a> <a href="http://www.ixl.com">www.ixl.com</a> <a href="http://www.khanacademy.org">www.khanacademy.org</a> <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a> <a href="http://www.ixl.com">www.ixl.com</a> <a href="http://www.khanacademy.org">www.khanacademy.org</a> <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>
<p><b>Instructional Practices:</b>          * Various Instructional Modalities, including Technology used</p>	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework



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<b>Assessments:</b> *Types and Measurements of Mastery	Informal: *Class Discussions/Questions *Practice Problems Formal: *Daily Homework *Section Quizzes *Chapter Tests *80% of the students will score 80% or higher on the chapter test	Informal: *Class Discussions/Questions *Practice Problems Formal: *Daily Homework *Section Quizzes *Chapter Tests *80% of the students will score 80% or higher on the chapter test	Informal: *Class Discussions/Questions *Practice Problems Formal: *Daily Homework *Section Quizzes *Chapter Tests *80% of the students will score 80% or higher on the chapter test	Informal: *Class Discussions/Questions *Practice Problems Formal: *Daily Homework *Section Quizzes *Chapter Tests *Mid-Term Exam *80% of the students will score 80% or higher on the chapter test	Informal: *Class Discussions/Questions *Practice Problems Formal: *Daily Homework *Section Quizzes *Chapter Tests *80% of the students will score 80% or higher on the chapter test
<b>Interdisciplinary Lessons &amp; Projects:</b> *State additional content areas and title all lesson(s) and project(s)	Math/Art/Music <i>Music to My Ears</i> Students will research Pythagoras's findings about music and then write their own piece of music.	Math/Social Studies <i>Stand Up and Be Counted!</i> Students will research the United States Census and the members of the House of Representatives.	Math/History Mayan Math: Students will learn how to write equations using Mayan mathematic number systems <a href="http://www.parents2partners.org/Files/MayaMath.pdf">http://www.parents2partners.org/Files/MayaMath.pdf</a>	Math/Health/Science <i>Walk the Plank</i> Students record how their weight changes as they move along a plank with a textbook on one end and a bathroom scale on the other. <a href="http://illuminations.nctm.org/Lesson.aspx?id=2347">http://illuminations.nctm.org/Lesson.aspx?id=2347</a>	Math/Technology <i>Be True to Your School</i> Students will use symmetry and transformations to design a new mascot or logo for their school.
<b>Honors Course Differentiation(s):</b>	N/A	N/A	N/A	N/A	N/A



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<p><b>Integrated Common Core or NGSSS Standards (List):</b> *See Below for Links</p>	CCSSMATH.CONTENT8.NS.1 CCSSMATH.CONTENT8.NS.2 CCSSMATH.CONTENT8.EE.1 CC CCSSMATH.CONTENT8.EE.2 SSMATH.CONTENT8.EE.3 CCSSMATH.CONTENT8.EE.4	CCSSMATH.CONTENT8.EE.7 CCSSMATH.CONTENT8.EE.7 b	CCSSMATH.CONTENT8.F.1 CCSSMATH.CONTENT8.F.3 CCSSMATH.CONTENT8.F.4 CCSSMATH.CONTENT8.F.5 CCSSMATH.CONTENT8.SP.1 CCSSMATH.CONTENT8.SP.3 CCSSMATH.CONTENT8.SP.4 CCSSMATH.CONTENT8.SP.5	CCSSMATH.CONTENT8.EE.5 CCSSMATH.CONTENT8.EE.6 CCSSMATH.CONTENT8.EE.8 CCSSMATH.CONTENT8.EE.8 a CCSSMATH.CONTENT8.EE.8 b CCSSMATH.CONTENT8.EE.8 c CCSSMATH.CONTENT8.F.2 CCSSMATH.CONTENT8.F.3 CCSSMATH.CONTENT8.F.4 CCSSMATH.CONTENT8.F.5 CCSSMATH.CONTENT8.F.6	CCSSMATH.CONTENT8.G.5 CCSSMATH.CONTENT8.G.6
<p><b>Integrated CCSS Writing Standards (List):</b> *See Below for Links</p>	N/A	N/A	N/A	N/A	N/A
<p><b>Links to CCSS/NGSSS Curriculum Standards:</b></p>	<p>The following links will be used to incorporate the CCSS and other applicable standards:</p> <ul style="list-style-type: none"> <li>• The <a href="#">Common Core State Standard</a> expectations in <b>grade _8_</b>,</li> <li>• The <a href="#">K-12 English LA and Content Area Writing Standards</a></li> <li>• The <a href="#">K-12 Reading Standards</a></li> <li>• The <a href="#">K-12 Mathematics Standards</a></li> <li>• The <a href="#">K-12 NGSSS Science &amp; Social Studies Standards</a></li> </ul>				
<p><b>Purpose of Planning</b></p>	<b>Unit Six</b> <b>*Quarter 3/Weeks 22-25</b>	<b>Unit Seven</b> <b>*Quarter 3-4/Weeks 26-28</b>	<b>Unit Eight</b> <b>*Quarter 4/Weeks 29-32</b>	<b>Unit Nine</b> <b>*Quarter 4/Weeks 33-34</b>	<b>Unit Ten</b> <b>*Quarter 4/Weeks 35-36</b>



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Unit Topic and Overview:	Triangles and Transformations	Units of Measure	Data Analysis and Statistics	Probability and Combinations	Area and Volume
<b>Prerequisite Student Knowledge</b> *What should students have previously mastered prior to this unit?	<b>Students should be able to use ratios and proportions to solve problems.</b>	<b>Students should be able to use proportions to solve problems.</b>	<b>Students should be able to construct and analyze histograms, stem-and-leaf plots, and circle graphs.</b>	<b>Students should be able to use fractions and percents to compare data sets of different sizes.</b>	<b>Students should be able to use formulas to find surface areas and volume of three-dimensional shapes, including composite shapes.</b>



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<p><b>Essential Knowledge &amp; Student Expectations</b> *What are the anticipated learning outcomes for students?</p>	<p>*Similar Polygons *Similar Triangles *Right Triangle Relationships *The Pythagorean Theorem *Distance on the Coordinate Plane *Slope Triangles *Special Right Triangles *Translations *Reflections *Congruence and Transformations *Rotational Symmetry *Rotations *Dilations *Similarity and Transformations *Compositions of Transformations</p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>Determine missing corresponding sides of similar polygons.</li> <li>Use similar triangles to solve problems that include height and distance.</li> <li></li> </ol>	<p>*Literal Equations *Determine Reasonable Answers *Accuracy and Precision</p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>Solve literal equations for a specified variable.</li> <li>Convert units of measure between customary and metric systems for temperature, length, weight/mass, capacity, time, area, and volume.</li> <li>Convert derived units of measure.</li> </ol>	<p>*Scatter Plots *Lines of Best Fit *Select an Appropriate Display</p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>Determine and describe how changes in data values impact measures of central tendency.</li> <li>Organize and construct box-and-whisker plots and scatter plots.</li> <li>Construct lines of best fit.</li> <li>Select and construct appropriate displays to convey information and make conjectures about possible relationships.</li> </ol>	<p>*Geometric Probability *Act it Out Strategy *Collect Data</p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>Represent all possible outcomes for compound events in an organized way and express the theoretical probability of each outcome.</li> <li>Use permutations and combinations.</li> <li>Use data to estimate the probability of future events.</li> <li>Design simulations to estimate probabilities.</li> <li>Identify claims based on statistical data and, in simple cases, evaluate the validity of the claims.</li> </ol>	<p>*Make a Model Strategy *Volume of Prisms and Cylinders *Volume of Pyramids, Cones, and Spheres</p> <p><b>Essential Concepts and Questions</b></p> <ol style="list-style-type: none"> <li>Find the circumference and area of circles.</li> <li>Use formulas for basic geometric plane figures to compute the area of composite or irregular figures.</li> <li>Use formulas to compute the volumes and surface areas of prisms, pyramids, cylinders, cones, and spheres.</li> <li>Find the volume of composite solids.</li> </ol>
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<p><b>Multi-Media Links:</b>          *Videos, presentations, any and all supplemental online material.</p>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a>  <a href="http://www.ixl.com">www.ixl.com</a>  <a href="http://www.khanacademy.org">www.khanacademy.org</a>  <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a>  <a href="http://www.ixl.com">www.ixl.com</a>  <a href="http://www.khanacademy.org">www.khanacademy.org</a>  <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a>  <a href="http://www.ixl.com">www.ixl.com</a>  <a href="http://www.khanacademy.org">www.khanacademy.org</a>  <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a>  <a href="http://www.ixl.com">www.ixl.com</a>  <a href="http://www.khanacademy.org">www.khanacademy.org</a>  <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>	<a href="http://www.connected.mcgraw-hill.com">www.connected.mcgraw-hill.com</a>  <a href="http://www.ixl.com">www.ixl.com</a>  <a href="http://www.khanacademy.org">www.khanacademy.org</a>  <a href="https://app.easycbm.com/teachers/auth/index.php">https://app.easycbm.com/teachers/auth/index.php</a>
<p><b>Instructional Practices:</b>          * Various Instructional Modalities, including Technology used</p>	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework	*Bell work and discussion, either reviewing a previously learned concept, or introducing a new one *Teacher lecture with PowerPoint presentation. *in-class practice *assignment of homework





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<p><b>Assessments:</b> *Types and Measurements of Mastery</p>	<p>Informal: Daily discussion, practice problems Formal: Daily homework, section quizzes, chapter tests</p> <p>*80% of the students will score 80% or higher on the chapter test</p>	<p>Informal: Daily discussion, practice problems Formal: Daily homework, section quizzes, chapter tests</p> <p>*80% of the students will score 80% or higher on the chapter test</p>	<p>Informal: Daily discussion, practice problems Formal: Daily homework, section quizzes, chapter tests</p> <p>*80% of the students will score 80% or higher on the chapter test</p>	<p>Informal: Daily discussion, practice problems Formal: Daily homework, section quizzes, chapter tests</p> <p>*80% of the students will score 80% or higher on the chapter test</p>	<p>Informal: Daily discussion, practice problems Formal: Daily homework, section quizzes, chapter tests, Final Exam</p> <p>*80% of the students will score 80% or higher on the chapter test</p>
<p><b>Interdisciplinary Lessons &amp; Projects:</b> *State additional content areas and title all lesson(s) and project(s)</p>	<p>Math/Engineering/Science <i>Design that Bridge</i> Students will create a detailed design of a new bridge for their city.</p>	<p>Math/Science <i>Green Thumb</i> Students will research plants and design a garden of their own.</p>	<p>Math/Social Studies/Technology <i>Web Design101</i> Students will research a country and design a Web page for that country.</p>	<p>Math/Science <i>Math Genes</i> Students will research genetics and Punnett Squares</p>	<p>Math/Science <i>Turn Over a New Leaf</i> Students will research characteristics of leaves, including surface area and volume. Math/Language Arts/Reading Pi Day Activities</p>
<p><b>Honors Course Differentiation(s):</b></p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>



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<p><b>Integrated CCSS Writing Standards (List):</b>          *See Below for Links</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>
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