

**GRADE 7 PRE-AP MATHEMATICS
2012-2013 SCOPE AND SEQUENCE**

1st Six Weeks	28 Days		<i>The recommended number of lessons is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
	Aug. 27 – Oct. 5, 2012		
	# of Lessons	Objectives	
		The student will:	
Unit 1 Integer Operations Students solve real-world problems involving operations with integers.	3 90-min. lessons or 6 45-min. lessons	<p>Ⓢ MATH.7.2C Use models, such as concrete objects, pictorial models, and number lines to add, subtract, multiply, and divide integers and connect the actions to algorithms.</p> <p>Ⓢ MATH.8.1B Select and use appropriate forms of rational numbers to solve real-world problems including those involving proportional relationships.</p> <p>Ⓢ MATH.8.2A Select appropriate operations to solve problems involving rational numbers and justify the selections.</p> <p>Ⓡ MATH.8.2B Use appropriate operations to solve problems involving rational numbers in problem situations <i>and justify the problem-solving process and the reasonableness of the solution.</i></p> <p>Ⓟ MATH.7.13B/Ⓟ MATH.8.14B Use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.</p>	
Unit 2 Rational Number Relationships Students extend previous experiences involving numeric relationships to comparison, order, and equivalency of integers as well as negative fractions and decimals.	2 90-min. lessons or 4 45-min. lessons	<p>Ⓢ MATH.7.1A Compare and order integers and positive rational numbers <i>or the words associated with them using concrete or pictorial models, benchmarks, and place value.</i></p> <p>Ⓡ MATH.8.1A Compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals.</p> <p>Ⓟ MATH.7.13D/Ⓟ MATH.8.14D Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.</p>	
Unit 3 Addition and Subtraction of Fractions Students use addition and subtraction to solve real-world problems involving positive and negative fractions.	3 90-min. lessons or 6 45-min. lessons	<p>Ⓡ MATH.7.2B Use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals <i>presented in real-world situations which include information expressed in various forms, including pictorial models, graphical representations, numbers, or ranges of numbers.</i></p> <p>Ⓢ MATH.8.2A Select appropriate operations to solve problems involving rational numbers and justify the selections.</p> <p>Ⓡ MATH.8.2B Use appropriate operations to solve problems involving rational numbers in problem situations and justify the problem-solving process and the reasonableness of the solution.</p> <p>Ⓢ MATH.8.2C Evaluate a solution for reasonableness <i>using a variety of strategies such as estimation using rounding or compatible numbers.</i></p>	
Unit 4 Multiplication and Division of Fractions Students use multiplication and division to solve real-world problems involving positive and negative fractions.	3 90-min. lessons or 6 45-min. lessons	<p>Ⓢ MATH.7.2A Represent multiplication and division situations involving fractions, and decimals with concrete objects, pictures, words, <i>expressions, and equations.</i></p> <p>Ⓡ MATH.7.2B Use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals <i>presented in real-world situations which include information expressed in various forms, including pictorial models, graphical representations, numbers, or ranges of numbers.</i></p> <p>Ⓢ MATH.8.2A Select appropriate operations to solve problems involving rational numbers and justify the selections.</p> <p>Ⓡ MATH.8.2B Use appropriate operations to solve problems involving rational numbers in problem situations <i>and justify the problem-solving process and the reasonableness of the solution.</i></p> <p>Ⓢ MATH.8.2C Evaluate a solution for reasonableness <i>using a variety of strategies such as estimation using rounding or compatible numbers.</i></p>	

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2nd Six Weeks	25 Days		<i>The recommended number of lessons is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
	Oct. 8 – Nov. 9, 2012		
	# of Lessons	Objectives	
		The student will:	
Unit 5 Percents Students compare, order, and find equivalencies among fractions, decimals, and percents. They develop the concept of part-to-whole relationships in solving real-world problems involving percent.	2 90-min. lessons or 4 45-min. lessons	Ⓡ MATH.7.1B Convert between fractions, decimals, whole numbers, and percents presented in application problems mentally, on paper, or with a calculator <i>using operations and definitions</i> . Ⓢ MATH.8.1B Select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships. Ⓢ MATH.8.2C Evaluate a solution for reasonableness <i>using a variety of strategies such as estimation using rounding or compatible numbers</i> . Ⓡ MATH.8.3B Estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates. Ⓡ MATH.8.5A Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations.	
Unit 6 Exponents and Scientific Notation Students use positive and negative exponents in algebraic representations. They also learn to express very large and very small numbers in scientific notation.	2 90-min. lessons or 4 45-min. lessons	Ⓢ MATH.8.1D Express numbers in scientific notation, including negative exponents, in appropriate problem situations. Ⓢ MATH.8.1B Select and use appropriate forms of rational numbers to solve real-world problems including those involving proportional relationships. Ⓢ MATH.8.2A Select appropriate operations to solve problems involving rational numbers and justify the selections. Ⓢ MATH.7.13A/Ⓢ MATH.8.14A Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics.	
Unit 7 Square Roots Students use mental math and technology to approximate the value of square roots and irrational numbers.	1 90-min. lessons or 2 45-min. lessons	2 (45-min) Lessons: Square Roots and Irrational Numbers Ⓢ MATH.7.1C Represent squares & square roots using geometric models <i>and use technology to estimate and determine exact square roots</i> . Ⓢ MATH.8.1C Approximate (mentally and with calculators) the value of irrational numbers (<i>such as pi and $\sqrt{2}$</i>) as they arise from <i>algebraic or geometric problem situations</i> . Ⓡ MATH.8.1A Compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals. MATH.8.1E Compare and order real numbers with a calculator. Ⓢ MATH.7.13D/Ⓢ MATH.8.14D Select tools such as real-world objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems. Ⓢ MATH.7.14A/Ⓢ MATH.8.15A Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.	

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	# of Lessons	Objectives
Unit 8 Equations and Algebraic Reasoning Students solve equations in which model real-world problems involving patterns and algebraic relationships. They also generate and use multiple representations of the same data in tables, graphs, verbal descriptions, and as symbols.	5 90-min. lessons or 10 45-min. lessons	<p>The student will:</p> <p><u>2 (45-min) Lessons: Informal Patterns and their Representations</u></p> <p>Ⓢ MATH.7.2E Describe the order of operations in a given numerical expression <i>and simplify numerical expressions</i> involving order of operations and exponents.</p> <p>Ⓡ MATH.8.4A Generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description).</p> <p>Ⓢ MATH.8.5B Write and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change) <i>and identify the appropriate algebraic expression given terms in a sequence.</i></p> <p>Ⓟ MATH.7.14A/Ⓟ MATH.8.15A Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.</p> <p>-----</p> <p><u>2 (45-min) Lessons: Evaluating and Writing Expressions and Equations</u></p> <p>Ⓢ MATH.7.2E Describe the order of operations in a given numerical expression <i>and simplify numerical expressions</i> involving order of operations and exponents.</p> <p>Ⓡ MATH.8.4A Generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description).</p> <p>Ⓢ MATH.8.5B Write and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change) <i>and identify the appropriate algebraic expression given terms in a sequence.</i></p> <p>Ⓟ MATH.7.14A/Ⓟ MATH.8.15A Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.</p> <p>-----</p> <p><u>6 (45-min) Lessons: Solving and Applying Equations</u></p> <p>Ⓢ MATH.7.5A Use concrete and pictorial models <i>to represent</i> and solve equations <i>involving rational numbers use pictures</i> and symbols to record the <i>steps of the solution process, and verify the solution using substitution.</i></p> <p>Ⓡ MATH.8.5A Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations.</p> <p>Ⓡ MATH.8.4A Generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description).</p> <p>Ⓟ MATH.7.14A/Ⓟ MATH.8.15A Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.</p>

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3rd Six Weeks	27 Days	The recommended number of lessons is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Nov. 12 – Dec. 21, 2012	
	# of Lessons	Objectives
		The student will:
Unit 9 Ratios and Proportions Students review the concept of proportional reasoning in the context of ratios, rates, and proportions. They compare and contrast proportional and non-proportional relationships using several methods and solve real-world problems such as cost comparisons and measurement conversions.	4 90-min. lessons or 8 45-min. lessons	<p>4 (45-min) Lessons: <u>Proportional and Non-Proportional Relationships</u></p> <p>Ⓢ MATH.8.2D Use multiplication by a given constant factor (including unit rate) to represent and solve problems involving proportional relationships <i>as functions and determine the unit rate for a proportional relationship</i> including conversions between measurement systems.</p> <p>Ⓢ MATH.8.3A Compare and contrast proportional and non-proportional relationships <i>using various methods including tables of values, algebraic rules, and graphs.</i></p> <p>Ⓡ MATH.8.3B Estimate and find solutions to application problems involving proportional relationships such as similarity and rates <i>using intuitive methods (such as unit rate method, factor-of-change approach, or a graphical/visual approach) as well as procedural methods.</i></p> <p>Ⓡ MATH.8.5A Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations.</p> <p>Ⓢ MATH.8.16B Validate conclusions using mathematical properties and relationships.</p> <p>-----</p> <p>4 (45-min) Lessons: <u>Solving Problems Involving Cost Comparisons and Measurement Ratios</u></p> <p>Ⓡ MATH.7.3B/Ⓡ MATH.8.3B Estimate and find solutions to application problems involving proportional relationships such as similarity and rates using intuitive methods <i>(such as unit rate method, factor-of-change approach, or a graphical/visual approach) as well as procedural methods.</i></p> <p>Ⓡ MATH.8.5A Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations.</p>

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	Nov.12 – Dec. 21, 2012		
	# of Lessons	Objectives	
<p>Unit 10 Applying Proportionality</p> <p>Students determine if figures are similar and use proportional relationships in similar figures to find missing measurements. Enlargements and reductions are completed using scale factors and dilations are graphed on a coordinate plane. The properties of similarity are also applied in situations involving scale models and indirect measurement.</p>	<p>4 90-min. lessons or 8 45-min. lessons</p>	<p>The student will:</p> <p><u>4 (45-min) Lessons: Dilations and Similar Polygons</u> Ⓜ MATH.8.9B Use proportional relationships in similar two-dimensional figures or similar three-dimensional figures to find missing measurements. Ⓐ Ⓢ MATH.8.10A Using concrete or pictorial models, as well as verbal or algebraic descriptions, describe the resulting effects on perimeter and area when dimensions of a figure are changed proportionally. Ⓜ MATH.8.6A Generate similar figures using dilations including enlargements and reductions, describe the relationship between the pre-image and the image using scale factor and magnitude, and apply scale factors in problem solving situations. Ⓢ MATH.8.6B Graph dilations, reflections, and translations on a coordinate plane and describe the relationships between the pre-image and the image. Ⓐ Ⓢ MATH.8.7D Locate and name points on a coordinate plane using ordered pairs of rational numbers based.</p> <p>-----</p> <p><u>4 (45-min) Lessons: Application Problems Involving Scale Drawings, Indirect Measurement, and Rate of Change</u> Ⓢ MATH.7.4A Generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, scaling, and sequences of numbers from a variety of representations, including verbal descriptions, tables of data, and diagrams. Ⓜ MATH.8.3B Estimate and find solutions to application problems involving proportional relationships such as similarity and rates using intuitive methods (such as unit rate method, factor-of-change approach, or a graphical/visual approach) as well as procedural methods. Ⓐ Ⓢ MATH.8.7B Use geometric concepts (including symmetry, similarity, congruence, and transformations) and properties of two- and three-dimensional figures to solve problems in fields such as art and architecture. Ⓜ MATH.8.9B Use proportional relationships in similar two-dimensional figures or similar three-dimensional figures to find missing measurements. Ⓜ MATH.8.5A Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations. Ⓢ MATH.8.3A Compare and contrast proportional and non-proportional relationships using various methods including tables of values, algebraic rules, and graphs.</p>	
<p>Unit 11 The Pythagorean Theorem</p> <p>Students use mental math and technology to approximate the value of square roots and irrational numbers and use them within the larger context of applying the Pythagorean Theorem and right triangle relationships.</p>	<p>2 90-min. lessons or 4 45-min. lessons</p>	<p><u>2 (45-min) Lessons: Modeling the Pythagorean Theorem</u> Ⓐ Ⓢ MATH.8.7C Use pictures or models to demonstrate the Pythagorean Theorem. Ⓜ MATH.8.2B Use appropriate operations to solve problems involving rational numbers in problem situations and justify the problem-solving process and the reasonableness of the solution. MATH.7.15A/MATH.8.16A Make conjectures from patterns or sets of examples and nonexamples.</p> <p>-----</p> <p><u>2 (45-min) Lessons: Applying the Pythagorean Theorem</u> Ⓜ MATH.8.9A Identify appropriate contextual situations for the use of the Pythagorean Theorem and use the Pythagorean Theorem to solve real-world problems. Ⓜ MATH.8.2B Use appropriate operations to solve problems involving rational numbers in problem situations and justify the problem-solving process and the reasonableness of the solution. Ⓢ MATH.7.15A/Ⓢ MATH.8.16A Make conjectures from patterns or sets of examples and nonexamples.</p>	

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4th Six Weeks	33 Days	<i>The recommended number of lessons is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
	Jan. 8 – Feb. 22, 2013	
	# of Lessons	Objectives
Unit 12 Two-Dimensional Geometric Figures and their Relationships Students investigate line and angle relationships, congruence and symmetry relationships, geometric transformations and their relationships, and the effects of dimensional changes on area and perimeter of two-dimensional geometric figures.	5 90-min. lessons	5 (45-min) Lessons: Line and Angle Relationships, Congruence, and Symmetry Ⓢ MATH.7.6A Use angle measurements to <i>define</i> and classify pairs of angles as complementary or supplementary. Ⓡ MATH.7.6D Use critical attributes to define similarity (<i>including corresponding parts and congruent angles</i>); use those attributes to determine if two figures are similar, and to identify proportional relationships of similar shapes. Ⓐ Ⓢ MATH.8.7B Use geometric concepts (<i>including symmetry, similarity, congruence, and transformations</i>) and properties of two- and three-dimensional shapes to solve problems in <i>fields such as art and architecture</i> . Ⓢ MATH.8.16A Make conjectures from patterns or sets of examples and nonexamples. Ⓢ MATH.8.16B Validate conclusions using mathematical properties and relationships.
	or 10 45-min. lessons	3 (45-min) Lessons: Reflections, Translations, and Dilations Ⓡ MATH.8.6A Generate similar figures using dilations including enlargements and reductions, describe the relationship between the pre-image and the image using scale factor and magnitude, and apply scale factors in problem solving situations. Ⓢ MATH.8.6B Graph dilations, reflections, and translations on a coordinate plane and describe the relationships between the pre-image and the image. Ⓐ Ⓢ MATH.8.7B Use geometric concepts (<i>including symmetry, similarity, congruence, and transformations</i>) and properties of two- and three-dimensional shapes to solve problems in <i>fields such as art and architecture</i> . Ⓐ Ⓢ MATH.8.7D Locate and name points on a coordinate plane using ordered pairs of rational numbers. Ⓢ MATH.8.14A Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics.
		2 (45-min) Lessons: Circumference and Area of Circles and Composite Figures Ⓡ MATH.7.9A Estimate measurements, solve application problems involving length (including perimeter and circumference) and area of polygons and other figures utilizing conversions and formulas, and distinguish between the types of units used (linear or square). Ⓐ Ⓢ MATH.8.10A Using concrete or pictorial models, as well as verbal or algebraic descriptions, describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally. Ⓢ MATH.8.14A Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics.



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	Jan. 8 – Feb. 22, 2013	
	# of Lessons	Objectives
Unit 13 Spatial Relationships and Volume in Geometric Solids Students investigate spatial relationships by matching drawings of front, top, and side views of geometric solids to the solid, drawing given solids from different perspectives, using spatial visualization skills to build concrete representations of solids, and investigate volume.	4 90-min. lessons	4 (45-min) Lesson: Spatial Visualization Ⓢ MATH.7.6C Identify properties of three-dimensional figures, including pyramids, cones, prisms, and cylinders and use <i>their properties</i> to classify the figures. Ⓢ MATH.7.8A Sketch a figure when given the top, side, and front views <i>and match those views to a given figure.</i> Ⓢ MATH.8.7A Draw three-dimensional figures from different perspectives <i>and match drawings of top, front, and side views to figures.</i> Ⓢ MATH.7.14A/Ⓢ MATH.8.15A Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.
	or 8 45-min. lessons	2 (45-min) Lessons: Volume of Prisms and Cylinders Ⓢ MATH.7.9B Connect models for volume of prisms (triangular and rectangular) and cylinders to formulas for volume of prisms (rectangular and triangular) and cylinders. Ⓢ MATH.7.9C Estimate measurements, solve application problems involving volume of prisms (rectangular and triangular) and cylinders <i>using the dimensions of a given figure and conversions and formulas, and distinguish the type of units used as cubic units.</i> Ⓢ MATH.8.8B Connect models of prisms, cylinders, pyramids, spheres, and cones to formulas for volume of these objects. Ⓢ MATH.8.8C Estimate measurements and use formulas <i>and conversions</i> to solve application problems involving lateral and total surface area and volume.
		2 (45-min) Lesson: Volume of Pyramids, Cones, and Spheres Ⓢ MATH.7.9C Estimate measurements, solve application problems involving volume of prisms (rectangular and triangular) and cylinders <i>using the dimensions of a given figure and conversions and formulas, and distinguish the type of units used as cubic units.</i> Ⓢ MATH.8.8B Connect models of prisms, cylinders, pyramids, spheres, and cones to formulas for volume of these objects. Ⓢ MATH.8.8C Estimate measurements and use formulas <i>and conversions</i> to solve application problems involving lateral and total surface area and volume. Ⓢ MATH.7.13A/Ⓢ MATH.8.14A Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics. Ⓢ MATH.7.14A/Ⓢ MATH.8.15A Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.

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4th	Six Weeks	33 Days	The recommended number of lessons is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Jan. 8 – Feb. 22, 2013		
		# of Lessons	Objectives
Unit 14 Surface Area and Similar Figures Students investigate surface area of three-dimensional figures as well as similarity of two- and three-dimensional figures.		4 90-min. lessons or 8 45-min. lessons	<p><u>2 (45-min) Lessons: Surface Area of Prisms and Cylinders</u></p> <p>Ⓢ MATH.7.8B Make a net (two-dimensional model) of the surface area of a three-dimensional figure <i>and construct three-dimensional models of solids given a net.</i></p> <p>Ⓡ MATH.7.9A Estimate measurements, solve application problems involving length (including perimeter and circumference) and area of polygons and other figures <i>utilizing conversions and formulas and distinguish between the types of units used (linear or square units).</i></p> <p>Ⓐ Ⓢ MATH.8.8A Find lateral and total surface area of prism, pyramids, and cylinders using concrete <i>and/or pictorial models</i> and nets (two-dimensional models.)</p> <p>Ⓡ MATH.8.8C Estimate measurements and use formulas <i>and conversions</i> to solve application problems involving lateral and total surface area and volume.</p> <hr style="border-top: 1px dashed black;"/> <p><u>2 (45-min) Lessons: Surface Area of Pyramids and Cones</u></p> <p>Ⓢ MATH.7.8B Make a net (two-dimensional model) of the surface area of a three-dimensional figure <i>and construct three-dimensional models of solids given a net.</i></p> <p>Ⓡ MATH.7.9A Estimate measurements, solve application problems involving length (including perimeter and circumference) and area of polygons and other figures <i>utilizing conversions and formulas, and distinguish between the types of units used (linear or square units).</i></p> <p>Ⓐ Ⓢ MATH.8.8A Find lateral and total surface area of prism, pyramids, and cylinders using concrete <i>and/or pictorial models</i> and nets (two-dimensional models.)</p> <p>Ⓡ MATH.8.8C Estimate measurements and use formulas <i>and conversions</i> to solve application problems involving lateral and total surface area and volume.</p> <hr style="border-top: 1px dashed black;"/> <p><u>4 (45-min) Lessons: Dimensional changes in 2D- and 3D Figures</u></p> <p>Ⓡ MATH.8.3B Estimate and find solutions to application problems involving proportional relationships such as similarity and rates <i>using intuitive methods as well as procedural methods.</i></p> <p>Ⓡ MATH.8.9B Use proportional relationships in similar two-dimensional figures or similar three-dimensional figures to find missing measurements.</p> <p>Ⓐ Ⓢ MATH.8.10A <i>Using concrete or pictorial models, as well as verbal or algebraic descriptions, describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally.</i></p> <p>Ⓐ Ⓢ MATH.8.10B <i>Using concrete or pictorial models as well as verbal or algebraic descriptions, describe the resulting effect on volume when dimensions of a solid are changed proportionally.</i></p>

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	Feb. 25 – Apr. 12, 2013		
	# of Lessons	The student will:	Objectives
Unit 15 Probability and Prediction of Real-World Events Students construct sample spaces for real-world events, determine the theoretical probability of those events, compare and contrast the theoretical and experimental probabilities obtained (using physical and geometric models), and make decisions and predictions based on those results.	2 90-min. lessons or 4 45-min. lessons	<p>Ⓢ MATH.7.10A Construct sample spaces for simple or composite experiments, <i>match a situation with a sample space that lists all possible combinations, or select the missing portion of a given sample space.</i></p> <p>Ⓢ MATH.7.10B Find the probability of independent events <i>using an experiment and compare the theoretical and experimental probabilities.</i></p> <p>Ⓡ MATH.8.11A Find the probabilities of dependent and independent events <i>in real world situations.</i></p> <p>Ⓢ MATH.8.11B Use theoretical probabilities and experiments to make predictions and decisions <i>about the data set of a given situation.</i></p> <p>MATH.8.11C Select and use different models (such as organized lists, tree diagrams, area models, spinners, dice, cards, or computer simulations) to simulate an event.</p> <p>Ⓢ MATH.7.14A/Ⓢ MATH.8.15A Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.</p> <p>Ⓢ MATH.7.15A/Ⓢ MATH.8.16A Make conjectures from patterns or sets of examples and nonexamples.</p>	
Unit 16 Data Collection and Data Analysis Students explore data collection and use graphical representations to create data displays (histograms, circle graphs, scatter plots, stem and leaf plots, and box and whisker plots) of real-world situations. They use the displays and measures of central tendency to analyze, interpret, make predictions, and determine misuses of the data.	3 90-min. lessons or 6 45-min. lessons	<p>Ⓢ MATH.7.11A Select and use an appropriate representation for presenting and displaying relationships among collected data, including line plot, line graph, bar graph, stem and leaf plot, circle graph, and Venn diagrams, justify the selection, <i>and determine whether the graphical representation of a given set of data is appropriate and/or accurate.</i></p> <p>Ⓡ MATH.7.11B Make inferences and convincing arguments based on an analysis of given or collected data <i>and use them to draw conclusions and make predictions.</i></p> <p>Ⓢ MATH.8.12A Use variability (range, including interquartile range (IQR)) and select the appropriate measure of central tendency or <i>range</i> to describe a set of data, justify the selection for a particular situation, <i>and identify the missing piece of data that will produce a target mean, median, mode, and/or range for a data set.</i></p> <p>Ⓡ Ⓢ MATH.8.12B Draw conclusions and make predictions by analyzing trends in scatterplots by <i>identifying and describing positive, negative, or no correlation in them.</i></p> <p>Ⓡ Ⓢ MATH.8.12C Select and use an appropriate representation for presenting and displaying relationships among collected data, including line plots, line graphs, stem and leaf plots, circle graphs, bar graphs, box and whisker plots, histograms, and Venn diagrams, with and without the use of technology.</p> <p>Ⓡ Ⓢ MATH.8.13A Evaluate methods of sampling to determine validity of an inference made from a set of data.</p> <p>Ⓡ MATH.8.13B Recognize misuses of graphical or numerical information and conclusions based on data analysis.</p>	

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	# of Lessons	Objectives
		The student will:
Unit 17 Readiness and Supporting Standards Review Students use appropriate problem-solving strategies and skills to review relevant Readiness and Supporting Standards (based on individual student diagnostic data).	5 90-min. lessons or 10 45-min. lessons	<p>Ⓟ MATH.7.13B/ Ⓟ MATH.8.14B Use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.</p> <p>Ⓟ MATH.7.13C/Ⓟ MATH.8.14C Select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem or working backwards to solve a problem.</p> <p>Ⓟ MATH.7.14A/ Ⓟ MATH.8.15A Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models. Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.</p>
Week of March 25, 2013	1 day	Grade 8 Mathematics STAAR Assessment

**GRADE 7 PRE-AP MATHEMATICS
2012-2013 SCOPE AND SEQUENCE**

6th Six Weeks	38 Days		The recommended number of lessons is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	April 15 – June 6, 2013		
	# of Lessons	The student will:	Objectives
Unit 18 Art in Math Project: Identifying and Creating Tessellations Students use geometric transformations to create tessellation art projects.	2 90-min. lessons or 4 45-min. lessons	<p>Ⓢ MATH.7.8C Use geometric concepts (including symmetry and transformations, scaling and similarity, and congruence) and properties of two- and three-dimensional figures to solve problems in fields such as art and architecture.</p> <p>ⒶⓈ Ⓢ MATH.8.7B Use geometric concepts (including symmetry, similarity, congruence, and transformations) and properties of two- and three-dimensional shapes to solve problems in fields such as art and architecture.</p> <p>Ⓢ MATH.7.13.A/Ⓢ MATH.8.14A Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics.</p>	
Unit 19 Using Algebraic Representations to Solve Real-World Problems Students revisit various algebra foundation topics and use multiple algebraic representations (verbal descriptions, tables, graphs, and equations) and symbolic relationships to solve real-world problems.	5 90-min. lessons or 10 45-min. lessons	<p>Ⓐ MATH.8.2B Use appropriate operations to solve problems involving rational numbers in problem situations and justify the problem-solving process and the reasonableness of the solution.</p> <p>Ⓐ MATH.8.5A Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations.</p> <p>ⒶⓈ Ⓢ ALG1.1A Describe and identify independent and dependent quantities and express them in functional relationships.</p> <p>ⒶⓈ Ⓢ ALG1.1B Gather and record data and use data sets to determine functional relationships between quantities and write a general equation describing the functional relationship.</p> <p>Ⓢ ALG1.1C Describe a functional relationships for given problem situations, and write linear equations or inequalities and quadratic equations to answer questions arising from the situation.</p> <p>Ⓐ ALG1.1D Represent relationships among quantities by using and building concrete models, completing tables, constructing graphs or diagrams, writing verbal descriptions, and writing equations or inequalities.</p> <p>Ⓢ ALG1.3A Use manipulatives, drawings, verbal descriptions, and symbols to represent unknowns and variables in real world situations.</p> <p>ⒶⓈ Ⓢ ALG1.3B Look for patterns in finite differences, determine the value of the zero term, and write the algebraic representation for the given situation.</p> <p>Ⓐ ALG1.4A Find specific function values; add, subtract, multiply, or divide to simplify polynomial expressions; transform and solve equations including factoring as necessary in problem situations which are expressed in verbal, algebraic, or pictorial (algebra tiles) representations.</p> <p>Ⓢ ALG1.5A Determine whether or not given situations can be represented by linear functions by determining finite differences and writing an algebraic representation.</p>	
LTF STANFORD	5 90-min. lessons or 10 45-min. lessons		