

Course: Fifth Grade Mathematics			Designated Six Weeks: 6th Six Weeks		
Unit: Introduction to Sixth Grade			Days to teach: 30		
TEKS	Guiding Questions & Specificity	Assessment	Vocabulary	Instructional Strategies	Resources/ Web-links

6.1 Number, operation, and quantitative reasoning. The student represents and uses rational numbers in a variety of equivalent forms. The student is expected to:					
<p>6.1(E) identify factors of a positive integer, common factors, and the greatest common factor of a set of positive integers;</p> <p>Supporting Standard</p> <p>College Readiness Standard: Numeric B.1. Perform computations with real and complex numbers. 1.b. Transform numerical expressions using field properties (especially the distributive property), order of operations, and properties of exponents.</p>	<p>Understand relationships among factors, multiples, divisors, and products</p> <p>Recognize and use properties of prime and composite numbers, even and odd numbers, and square numbers</p> <p>Develop strategies to identify factors and multiples, LCM, and GCF</p> <p>Use LCM and GCF to solve problems</p>	<p>A teacher has 32 students in her class. She wants to put the students into groups so that each group has the same number of students. Which of the following does NOT represent the number of students she could put into groups?</p> <p>A. 4 B. 10 C. 8 D. 16</p> <p><i>Answer: B</i></p>	<p>common factor composite divisor factor greatest common factor least common multiple multiple prime product square</p>	<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 4F</p> <p>Students will use rectangle arrays to represent the factor pairs of a number</p> <p>Students will build models, make lists and tables, and draw diagrams to solve problems</p>	<p>CMP2 Prime Time, Investigations 1 (all), 2.1, 2.3, 3.1 and 3.2</p> <p>Safari Montage</p>

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<p>6.1(D) write prime factorizations using exponents;</p> <p>Supporting Standard</p> <p>College Readiness Standard: Numeric B.1.b. Transform numerical expressions using field properties (especially the distributive property), order of operations, and properties of exponents.</p>	<p>Write and use a whole number as a product of prime numbers</p>	<p>Find the prime factorization of 60.</p> <p>A. $3^2 \cdot 10$ B. $2 \cdot 3 \cdot 10$ C. $2 \cdot 2 \cdot 15$ D. $2^2 \cdot 3 \cdot 5$</p> <p><i>Answer: D</i></p>	<p>prime prime factorization exponent</p>	<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 5B, 5F</p> <p>Students will write a whole number as the product of its prime factors, using exponents if necessary Students will generate prime factorizations to determine GCF and LCM (teacher's discretion)</p>	<p>CMP2 Prime Time, Investigation 4 Safari Montage</p>

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6.1 Number, operation, and quantitative reasoning. The student represents and uses rational numbers in a variety of equivalent forms. The student is expected to:					
<p>6.1(B) generate equivalent forms of rational numbers including whole numbers, fractions, and decimals.</p> <p>Readiness Standard</p> <p>College Readiness Standard: Numeric A.1 Compare real numbers</p>	<p>Model situations involving fractions</p> <p>Understand and use equivalent fractions</p> <p>Compare and order fraction</p> <p>Use benchmark fractions</p> <p>Move flexibly among fractions, decimals and percent representations</p>	<p>Stephanie bought a basketball on sale for \$15, which was 1/5 off the original price. What decimal represents the discount she received?</p> <p>A. 0.05 B. 0.20 C. 0.15 D. 0.50</p> <p><i>Answer: B</i></p>	<p>fraction equivalent</p>	<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 4F</p> <p>Students will use context, physical models, drawings, patterns, or estimation to help reason about situations involving fractions</p>	<p>CMP2 Bits and Pieces I, Investigations 1 and 2</p> <p>Safari Montage</p>

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6.2 Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, and divides to solve problems and justify solutions. The student is expected to:					
<p>6.2(A) model addition and subtraction situations involving fractions with objects, pictures, words, and numbers;</p> <p>Supporting Standard</p> <p>College Readiness Standard: Numeric B.1.a. Add, subtract, multiply, and divide real numbers accurately, including irrational numbers, numbers with exponents, and absolute value.</p>	<p>Add and subtract fractions with unlike denominators</p> <p>Generate equivalent fractions with least common denominator</p>	<p>Mrs. Gabriel owns a total of 60 acres. Her western pasture has an area of $4\frac{3}{4}$ acres. Her eastern pasture has an area of $10\frac{1}{2}$ acres. Which expression could be used to find how much larger the eastern pasture is than the western pasture?</p> <p>A. $60 - 10\frac{1}{2} - 4\frac{3}{4}$</p> <p>B. $60 + 10\frac{1}{2} + 4\frac{3}{4}$</p> <p>C. $10\frac{1}{2} - 4\frac{3}{4}$</p> <p>D. $10\frac{1}{2} + 4\frac{3}{4}$</p> <p><i>Answer: C</i></p>	<p>denominator least common denominator numerator unlike denominators</p>	<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 4F Students will use models to demonstrate equivalency, addition, and subtraction</p> <p>Students will use LCD to generate equivalent fractions</p>	<p>enVision Step Up Lesson 9</p> <p>Safari Montage</p>

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<p>6.2(B) use addition and subtraction to solve problems involving fractions and decimals.</p> <p>Readiness Standard</p> <p>College Readiness Standard: Numeric B.1. Perform computations with real and complex numbers. 1.a. Add, subtract, multiply, and divide real numbers accurately, including irrational numbers, numbers with exponents, and absolute value.</p>		<p>John is going to make three kinds of cookies. He will need $2\frac{1}{3}$ cup flour for the first kind, $2\frac{1}{4}$ cups flour for the second kind, and $3\frac{1}{2}$ cups flour for the third kind. How much flour does John need for all three kinds of cookies?</p> <p><i>Answer:</i> $8\frac{1}{12}$</p>		<p>Student will add and subtract fractions with unlike denominators</p>	
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<p>6.2(C) use multiplication and division of whole numbers to solve problems including situations involving equivalent ratios and rates.</p> <p>Readiness Standard</p> <p>College Readiness Standard: Numeric B.1.a. Add, subtract, multiply, and divide real numbers accurately, including irrational numbers, numbers with exponents, and absolute value.</p>	<p>Teach proportions based on their relationship. Do not use cross products to teach proportions. Focus on the relationship of the two ratios.</p> <p>Involve whole number situations relevant to real world problem situations</p> <p>Identify ratios in various forms</p> <p>Make predictions using proportions</p>	<p>Linda bought 2 blouses for a total of \$52 and 3 equally priced dresses. She spent a total of \$148, not including tax. Find the price of each dress.</p> <p>A. \$26 B. \$52 C. \$32 D. \$55</p> <p><i>Answer: C</i></p>		<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 1E</p> <p>Verify solutions with or without a calculator</p> <p>Solve multi-step problems</p>	<p>enVision Step Up to Grade 6 Lesson 18</p> <p>A.I.R.R. (6th Grade) Activities 102-106</p> <p>CMP2 How Likely Is It? Investigation 1, 2</p> <p>Safari Montage</p>

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6.3 Patterns, relationships, and algebraic thinking. The student solves problems involving direct proportional relationships. The student is expected to:					
<p>6.3(A) use ratios to describe proportional situations;</p> <p>Supporting Standard</p> <p>College Readiness Standard: Numeric B.1.c. Solve problems involving rational numbers, ratios, percents, and proportions in context of the situation.</p>	<p>Convert fractions to decimals and vice versa</p> <p>Express ratios as part to part and part to whole</p>	<p>On a bird-watching trip, Benda saw 14 robins and Sam saw 18 blue jays. What is the ratio of the number of blue jays that Sam saw to the number of robins that Brenda saw?</p> <p>A. 7:9 B. 16:9 C. 7:16 D. 9:7</p> <p><i>Answer: D</i></p>	<p>proportion ratio</p>	<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 4F</p> <p>Use pictures and models to express ratios</p> <p>Use ratios that may or may not be in lowest terms</p> <p>Represent ratios in a table, equation, or verbal description</p>	<p>enVision Step Up to Grade 6 Lessons 12, 13, 15, and 17</p> <p>Safari Montage</p>

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<p>6.3(B) represent ratios and percents with concrete models, fractions, and decimals;</p> <p>Supporting Standard</p> <p>College Readiness Standard: Numeric B.1.c. Solve problems involving rational numbers, ratios, percents, and proportions in context of the situation.</p>	<p>Convert fractions to decimals and vice versa</p> <p>Simplify ratios expressed as fractions</p> <p>Represent ratios as proper or improper fractions, decimals or percents</p> <p>Use pictures and models to express ratios</p>	<p>By 2:30 p.m. on Monday, 25% of the classes at Valley Middle School had finished taking yearbook pictures. What fractional part of the classes had NOT yet taken their yearbook pictures?</p> <p>A. $\frac{1}{25}$</p> <p>B. $\frac{2}{5}$</p> <p>C. $\frac{1}{4}$</p> <p>D. $\frac{3}{4}$</p> <p><i>Answer: D</i></p>		<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html</p> <p>4F</p> <p>Use benchmarks: $\frac{1}{10}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$</p> <p>Use models of length and hands-on measurements to express ratios using customary and metric units</p>	<p>enVision Step Up to Grade 6 Lesson 14</p> <p>A.I.R.R (Grade 6) Activities 107-122</p> <p>Safari Montage</p>
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<p>6.3(C) use ratios to make predictions in proportional situations.</p> <p>Readiness Standard</p> <p>College Readiness Standard: Numeric B.1.c. Solve problems involving rational numbers, ratios, percents, and proportions in context of the situation.</p>	<p>Set up proportional problem from a verbal description and solve</p> <p>Use data in table or make a table with given data</p> <p>Demonstrate proportional situations involving rate and time</p>	<p>The ratio of red rosebushes in the school garden is about 3 to 4. If there were 36 yellow rosebushes, about how many red rosebushes would there be?</p> <p>Answer: 27</p>		<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 1C</p> <p>Use proportions to find the missing measures of similar figures</p> <p>Use maps and scale drawings to solve real-world problems</p>	<p>enVision Step Up to Grade 6 Lessons 14, 17, 19 and 20</p> <p>A.I.R.R Grade 6 Activities 102-106</p> <p>Safari Montage</p>

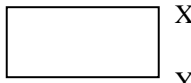
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6.6 Geometry and spatial reasoning. The student uses geometric vocabulary to describe angles, polygons, and circles. The student is expected to:					
<p>6.6(A) use angle measurements to classify angles as acute, obtuse, or right;</p> <p>Supporting Standard</p> <p>College Readiness Standard: Geometric A.2. Make, test, and use conjectures about one-, two-, and three-dimensional figures and their properties. 2.b. Develop and verify angle relationships: vertical, complementary, supplementary, angles on parallel lines, angle-side relations in a triangle, interior/exterior</p>	<p>Name angles by 3 points, a number, and/or a given vertex</p> <p>Determine angle classifications from written descriptions and visual images</p> <p>Present angle measures on a protractor in various forms (left, right, center)</p>		<p>acute angle obtuse protractor right straight vertex</p>	<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 4F, 2C</p>	<p>CMP2 Shapes and Designs Investigations 1, 2, 3</p> <p>Safari Montage</p>

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6.6 Geometry and spatial reasoning. The student uses geometric vocabulary to describe angles, polygons, and circles. The student is expected to:					
<p>6.6(C) describe the relationship between radius, diameter, and circumference of a circle.</p> <p>Readiness Standard</p> <p>College Readiness Standard: Geometric A.2. Make, test, and use conjectures about one-, two-, and three-dimensional figures and their properties. 2.c. Develop, verify, and extend properties of circles, including properties of angles, arcs, chords, tangents, secants, and spheres</p>	<p>Find the radius, diameter, or circumference from a given equation</p> <p>Compare equations to see relationships</p>	<p>The diameter of a circular plate is approximately 6 inches. Which of the following is closest to the circumference of the plate?</p> <p>A. 36 in. B. 108 in. C. 18 in. D. 54 in.</p> <p><i>Answer: C</i></p>	<p>circle circumference diameter radius</p>	<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 5B, 4C, 2B</p> <p>Approximate pi as 3</p> <p>Leave answer in terms of pi</p> <p>Given the diameter or radius, find the circumference; given the circumference, find the diameter or radius</p>	<p>CMP2 Covering and Surrounding Investigations 1, 3, 4, 5.2, 5.3</p> <p>Safari Montage</p>

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6.8 Measurement. The student solves application problems involving estimation and measurement of length, area, time, temperature, volume, weight, and angles. The student is expected to:					
<p>6.8(A) estimate measurements (including circumference) and evaluate reasonableness of results;</p> <p>Supporting Standard</p> <p>College Readiness Standard: Measurement A.1. Select or use the appropriate type of unit for the attribute being measured. 1.a. Determine appropriate units of measurement needed for the object being measured in a given situation (e.g., unit analysis, degree, or radian measure of an angle.) 1.b. Select and</p>	<p>Find length, perimeter, and circumference in metric and customary units</p> <p>Find area in metric and customary units of circles, triangles, quadrilaterals</p> <p>Use various units of time, including elapsed time</p> <p>Estimate before calculations</p>	<p>If quadrilateral WXYZ is a rectangle, which statement about this rectangle must be true?</p> <p>W  X</p> <p>Z Y</p> <p>A. The measures of angle W and angle X add up to 90 degrees</p> <p>B. Angle Y and angle Z are not congruent</p> <p>C. The measure of angle W and angle Y add up to 180 degrees</p> <p>D. All the angles are Acute</p> <p><i>Answer: C</i></p>		<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 3A, 1A</p> <p>Use Mathematics Chart to solve problems</p> <p>Use overestimation and underestimation to determine a reasonable range</p> <p>Given the area, perimeter, or circumference, find the missing dimension</p>	<p>Selected lessons from 6th grade:</p> <p>AIRR</p> <p>Engaging Mathematics</p> <p>Closing the Difference</p> <p>Glencoe Course 1</p> <p>Connected Mathematics Program</p> <p>Safari Montage</p>

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accurately use an appropriate tool to make measurements. 1.c. Recognize and use significant digits to determine the accuracy of a measurement in problem situations. 1.e. Know when to estimate and approximate measurements for given problem situations.					
6.8(B) select and use appropriate units, tools, or formulas to measure and to solve problems involving length (including perimeter), area, time, temperature, volume, and weight; Readiness Standard College Readiness Standard: Measurement A.1.	Identify and interpret degree scale of a thermometer Use the given dimensions of a figure to solve problems given the area, perimeter, or circumference, find the missing dimension Solve area problems for shaded/unshaded regions Solve perimeter problems in which dimensions are shared	Francesca used a square piece of poster board to show the main points of her history presentation. The length of each side of the poster board was 24 inches. Find the area of the poster board. A. 48 square inches B. 96 square inches C. 400 square inches D. 576 square inches <i>Answer: D</i>		Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 1E, 2F Measure using the ruler on the Mathematics Chart Use formulas and conversions on the Mathematics Chart to solve problems	Selected lessons from 6th grade: AIRR Engaging Mathematics Closing the Difference Glencoe Course 1 Connected Mathematics Program

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<p>Select or use the appropriate type of unit for the attribute being measured.</p> <p>1.a. Determine appropriate units of measurement needed for the object being measured in a given situation (e.g., unit analysis, degree, or radian measure of an angle.)</p> <p>1.b. Select and accurately use an appropriate tool to make measurements.</p> <p>1.c. Recognize and use significant digits to determine the accuracy of a measurement in problem situations.</p> <p>1.e. Know when to estimate and approximate measurements for given problem situations.</p>					<p>Safari Montage</p>
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<p>6.8(C) measure angles</p> <p>Supporting Standard</p> <p>College Readiness Standard: Measurement A.1. Select or use the appropriate type of unit for the attribute being measured. 1.a. Determine appropriate units of measurement needed for the object being measured in a given situation (e.g., unit analysis, degree, or radian measure of an angle.)</p>	<p>Use pictorial representation of a protractor and use an actual protractor to measure and construct angles to the nearest degree</p> <p>Measure angles in a given geometric figure – such as angles in triangles and quadrilaterals</p> <p>Understand angle symbols</p> <p>Measure angles where the rays do not lie on zero degree as shown on the pictorial protractor</p>		<p>protractor</p>	<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 4F</p> <p>Use other tools to measure angles such as the corner of a paper</p> <p>Use angle classification benchmarks (0 degrees, 90 degrees, 45 degrees) to estimate and determine the reasonableness of angle measurements when reading a protractor</p>	

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6.10 Probability and statistics. The student uses statistical representations to analyze data. The student is expected to:																					
<p>6.10(B) identify mean (using concrete objects and pictorial models), median, mode, and range of a set of data.</p> <p>Supporting Standard</p> <p>College Readiness Standard: Statistical B.3. Compute and describe summary statistics of data. 3.a. Calculate, describe, and use the appropriate measure of center (e.g., mean, median, mode) and spread (e.g., range, IQR, percentiles, variance, standard deviation). Measurement D.1. Compute and use measures of center and spread to describe data.</p>	<p>Solve for the median, mode, mean, and/or range with a given set of data (odd and even data set)</p> <p>Use data from tables, graphs, lists, and word problems</p>	<p>There are 6 children in Chris's family, including Chris. Their ages in year are listed below. What is the median of the children's ages?</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Age</th> </tr> </thead> <tbody> <tr> <td>Dean</td> <td>6</td> </tr> <tr> <td>Chris</td> <td>2</td> </tr> <tr> <td>Gerald</td> <td>5</td> </tr> <tr> <td>Jon</td> <td>13</td> </tr> <tr> <td>Skylar</td> <td>3</td> </tr> <tr> <td>Jessica</td> <td>8</td> </tr> <tr> <td>Tracy</td> <td>11</td> </tr> </tbody> </table> <p>A. 6 B. 2 C. 5 D. 13</p> <p><i>Answer: A</i></p>	Name	Age	Dean	6	Chris	2	Gerald	5	Jon	13	Skylar	3	Jessica	8	Tracy	11		<p>Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 4F</p> <p>Analyze how adding a piece of data will change each measure</p> <p>Use concrete objects to develop concept of mean (evening out)</p>	
Name	Age																				
Dean	6																				
Chris	2																				
Gerald	5																				
Jon	13																				
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1.a. Select, compute, and justify measurements of center (e.g., mean, median, mode) based on the data set and other influential information.					