

Texas Essential Knowledge and Skills for Mathematics Correlation to Project M³ – Level 5-6

111.7. Grade 5

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Each lesson addresses these standards through the following:

- In-depth investigations and games
- Questioning strategies, including who, what, when, where, why and how questions
- Oral and written mathematical communication and argumentation
 - Think Deeply questions
 - Talk moves
 - Math Messaging Board
- Multiple models on the concrete, pictorial, and abstract levels
- Differentiation
 - Hint Cards
 - Think Beyond questions
- Creative problem solving/problem posing heuristic

(3) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:

<p>(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division;</p> <p>(B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm;</p> <p>(C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm;</p> <p>(D) represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models;</p> <p>(E) solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers;</p> <p>(F) represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models;</p> <p>(G) solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm;</p> <p>(H) represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations;</p>	<p>(A) Record Makers and Breakers: Chapter 1, Lesson 4; Chapter 1, Lesson 5; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(A) Fun at the Carnival: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(B) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(C) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(D) Record Makers and Breakers: Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(E) Record Makers and Breakers: Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(F) Record Makers and Breakers: Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(G) Record Makers and Breakers: Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(H) Record Makers and Breakers: Fun at the Carnival Chapter 2, Lesson 1</p> <p>(I) Record Makers and Breakers: Chapter 1, Lesson 4; Chapter 1, Lesson 5; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(I) Fun at the Carnival: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>
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<p>(I) represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models;</p> <p>(J) represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as $1/3 \div 7$ and $7 \div 1/3$ using objects and pictorial models, including area models;</p> <p>(K) add and subtract positive rational numbers fluently; and</p> <p>(L) divide whole numbers by unit fractions and unit fractions by whole numbers.</p>	
<p>(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:</p>	
<p>(A) identify prime and composite numbers;</p> <p>(B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity;</p> <p>(C) generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph;</p> <p>(D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph;</p> <p>(E) describe the meaning of parentheses and brackets in a numeric expression;</p> <p>(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping;</p>	<p>(A) What Are Your Chances? Chapter 1, Lesson 3</p> <p>(B) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(C) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(D) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(G) Designer Boxes: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 3</p> <p>(G) Fun at the Carnival:</p>

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<p>(G) use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube ($V = l \times w \times h$, $V = s \times s \times s$, and $V = Bh$); and</p> <p>(H) represent and solve problems related to perimeter and/or area and related to volume.</p>	<p>Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(H) Designer Boxes: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(H) Fun at the Carnival: Chapter 2, Lesson 4</p>
<p>(5) Geometry and measurement. The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.</p>	
	<p>What Are Your Chances? Chapter 2, Lesson 2</p>
<p>(6) Geometry and measurement. The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to:</p>	
<p>(A) recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill it with no gaps or overlaps if possible; and</p> <p>(B) determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.</p>	<p>(A) Designer Boxes: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3</p> <p>(A) Fun at the Carnival: Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(B) Designer Boxes: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3;</p> <p>(B) Fun at the Carnival: Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>
<p>(7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to solve problems by calculating conversions within a measurement system, customary or metric.</p>	
	<p>Fun at the Carnival: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>

<p>(8) Geometry and measurement. The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to:</p>	
<p>(A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the x-coordinate, the first number in an ordered pair, indicates movement parallel to the x-axis starting at the origin; and the y-coordinate, the second number, indicates movement parallel to the y-axis starting at the origin;</p> <p>(B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane; and</p> <p>(C) graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.</p>	<p>(A) Record Makers and Breakers: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4</p> <p>(B) Record Makers and Breakers: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4</p> <p>(C) Record Makers and Breakers: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4</p>
<p>(9) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:</p>	
<p>(A) represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots;</p> <p>(B) represent discrete paired data on a scatterplot; and</p> <p>(C) solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.</p>	<p>(A) What Are Your Chances? Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(B) Record Makers and Breakers: Chapter 1, Lesson 1; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(C) Record Makers and Breakers: Chapter 1, Lesson 1; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(C) What Are Your Chances? Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p>

111.26. Grade 6

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Each lesson addresses these standards through the following:

- In-depth investigations and games
- Questioning strategies, including who, what, when, where, why and how questions
- Oral and written mathematical communication and argumentation
 - Think Deeply questions
 - Talk moves
 - Math Messaging Board
- Multiple models on the concrete, pictorial, and abstract levels
- Differentiation
 - Hint Cards
 - Think Beyond questions
- Creative problem solving/problem posing heuristic

(3) Number and operations. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to:

<p>(A) recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;</p> <p>(B) determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one;</p> <p>(C) represent integer operations with concrete models and connect the actions with the models to standardized algorithms;</p> <p>(D) add, subtract, multiply, and divide integers fluently; and</p> <p>(E) multiply and divide positive rational numbers fluently.</p>	<p>(B) Fun at the Carnival: Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(E) Fun at the Carnival: Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>
<p>(4) Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:</p>	
<p>(A) compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships;</p> <p>(B) apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;</p> <p>(C) give examples of ratios as multiplicative comparisons of two quantities describing the same attribute;</p> <p>(D) give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients;</p>	<p>(A) Record Makers and Breakers: Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(B) Record Makers and Breakers: Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(B) Fun at the Carnival: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(B) Our Environment Matters: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(C) Record Makers and Breakers:</p>

(E) represent ratios and percents with concrete models, fractions, and decimals;

(F) represent benchmark fractions and percents such as 1%, 10%, 25%, $33\frac{1}{3}\%$, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers;

(G) generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money; and

(H) convert units within a measurement system, including the use of proportions and unit rates.

Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4

(C) Fun at the Carnival:

Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4

(D) Record Makers and Breakers:

Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4

(E) Record Makers and Breakers:

Chapter 1, Lesson 4

(E) Fun at the Carnival:

Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4

(E) Our Environment Matters:

Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3

(F) Our Environment Matters:

Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3

(G) Our Environment Matters:

Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3

(H) Fun at the Carnival:

Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4

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	(H) Our Environment Matters: Chapter 2, Lesson 3
(5) Proportionality. The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to:	
<p>(A) represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;</p> <p>(B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models; and</p> <p>(C) use equivalent fractions, decimals, and percents to show equal parts of the same whole.</p>	<p>(A) Record Makers and Breakers: Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(A) Fun at the Carnival: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(A) Our Environment Matters: Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(B) Our Environment Matters: Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1</p> <p>(C) Our Environment Matters: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1</p>
(6) Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to:	
<p>(A) identify independent and dependent quantities from tables and graphs;</p> <p>(B) write an equation that represents the relationship between independent and dependent quantities from a table; and</p>	<p>(A) Record Makers and Breakers: Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(B) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>

<p>(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$.</p>	<p>(C) Record Makers and Breakers: Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>
<p>(8) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:</p>	
<p>(A) extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle;</p> <p>(B) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes;</p> <p>(C) write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers; and</p> <p>(D) determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.</p>	<p>(A) Fun at the Carnival: Chapter 1, Lesson 3; Chapter 1, Lesson 4;</p> <p>(C) Fun at the Carnival Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(C) Designer Boxes: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(C) Our Environment Matters: Chapter 1, Lesson 1; Chapter 1, Lesson 3</p> <p>(D) Fun at the Carnival Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(D) Designer Boxes: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(D) Our Environment Matters: Chapter 1, Lesson 1; Chapter 1, Lesson 3</p>
<p>(9) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to represent situations. The student is expected to:</p>	
<p>(A) write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;</p>	<p>(A) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(C) Record Makers and Breakers:</p>

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<p>(B) represent solutions for one-variable, one-step equations and inequalities on number lines; and</p> <p>(C) write corresponding real-world problems given one-variable, one-step equations or inequalities.</p>	<p>Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>
<p>(10) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to solve problems. The student is expected to:</p>	
<p>(A) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and</p> <p>(B) determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.</p>	<p>(A) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(B) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>
<p>(11) Measurement and data. The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to graph points in all four quadrants using ordered pairs of rational numbers.</p>	
	<p>Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>

111.27. Grade 7

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

- (A) apply mathematics to problems arising in everyday life, society, and the workplace;
- (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
- (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
- (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- (E) create and use representations to organize, record, and communicate mathematical ideas;
- (F) analyze mathematical relationships to connect and communicate mathematical ideas; and
- (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Each lesson addresses these standards through the following:

- In-depth investigations and games
- Questioning strategies, including who, what, when, where, why and how questions
- Oral and written mathematical communication and argumentation
 - Think Deeply questions
 - Talk moves
 - Math Messaging Board
- Multiple models on the concrete, pictorial, and abstract levels
- Differentiation
 - Hint Cards
 - Think Beyond questions
- Creative problem solving/problem posing heuristic

(3) Number and operations. The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. The student is expected to:

- (A) add, subtract, multiply, and divide rational numbers fluently; and

(A) Our Environment Matters:
 Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3;
 Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3

<p>(B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.</p>	<p>(B) Our Environment Matters: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p>
<p>(4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to:</p>	
<p>(A) represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$;</p> <p>(B) calculate unit rates from rates in mathematical and real-world problems;</p> <p>(C) determine the constant of proportionality ($k = y/x$) within mathematical and real-world problems;</p> <p>(D) solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems; and</p> <p>(E) convert between measurement systems, including the use of proportions and the use of unit rates.</p>	<p>(A) Record Makers and Breakers: Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(A) Our Environment Matters: Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(B) Record Makers and Breakers: Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(C) Fun at the Carnival: Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(D) Record Makers and Breakers: Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(D) Our Environment Matters: Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(E) Fun at the Carnival: Chapter 2, Lesson 4</p>
<p>(5) Proportionality. The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships. The student is expected to:</p>	

<p>(A) generalize the critical attributes of similarity, including ratios within and between similar shapes;</p> <p>(B) describe π as the ratio of the circumference of a circle to its diameter; and</p> <p>(C) solve mathematical and real-world problems involving similar shape and scale drawings.</p>	<p>(A) Fun at the Carnival: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(C) Fun at the Carnival: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>
<p>(6) Proportionality. The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. The student is expected to:</p>	
<p>(A) represent sample spaces for simple and compound events using lists and tree diagrams;</p> <p>(B) select and use different simulations to represent simple and compound events with and without technology;</p> <p>(C) make predictions and determine solutions using experimental data for simple and compound events;</p> <p>(D) make predictions and determine solutions using theoretical probability for simple and compound events;</p> <p>(E) find the probabilities of a simple event and its complement and describe the relationship between the two;</p> <p>(F) use data from a random sample to make inferences about a population;</p> <p>(G) solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents;</p>	<p>(A) What Are Your Chances? Chapter 1, Lesson 4; Chapter 1, Lesson 5; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(B) What Are Your Chances? Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 1, Lesson 5; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(C) What Are Your Chances? Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 5; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(D) What Are Your Chances? Chapter 1, Lesson 4; Chapter 1, Lesson 5; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(E) What Are Your Chances? Chapter 1, Lesson 3; Chapter 2, Lesson 3</p> <p>(H) What Are Your Chances? Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 5; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p>

<p>(H) solve problems using qualitative and quantitative predictions and comparisons from simple experiments; and</p> <p>(I) determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces.</p>	<p>(I) What Are Your Chances? Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 1, Lesson 5; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p>
<p>(7) Expressions, equations, and relationships. The student applies mathematical process standards to represent linear relationships using multiple representations. The student is expected to represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$.</p>	
	<p>Record Makers and Breakers: Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 1, Lesson 4; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>
<p>(9) Expressions, equations, and relationships. The student applies mathematical process standards to solve geometric problems. The student is expected to:</p>	
<p>(A) solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids;</p> <p>(B) determine the circumference and area of circles;</p> <p>(C) determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles; and</p> <p>(D) solve problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid by determining the area of the shape's net.</p>	<p>(A) Designer Boxes: Chapter 1, Lesson 1; Chapter 1, Lesson 2; Chapter 1, Lesson 3; Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p> <p>(A) Fun at the Carnival: Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(D) Designer Boxes: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3</p>
<p>(10) Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations and inequalities to represent situations. The student is expected to:</p>	

<p>(A) write one-variable, two-step equations and inequalities to represent constraints or conditions within problems;</p> <p>(B) represent solutions for one-variable, two-step equations and inequalities on number lines; and</p> <p>(C) write a corresponding real-world problem given a one-variable, two-step equation or inequality.</p>	<p>(A) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(B) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(C) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>
<p>(11) Expressions, equations, and relationships. The student applies mathematical process standards to solve one-variable equations and inequalities. The student is expected to:</p>	
<p>(A) model and solve one-variable, two-step equations and inequalities;</p> <p>(B) determine if the given value(s) make(s) one-variable, two-step equations and inequalities true; and</p> <p>(C) write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.</p>	<p>(A) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p> <p>(B) Record Makers and Breakers: Chapter 2, Lesson 1; Chapter 2, Lesson 2; Chapter 2, Lesson 3; Chapter 2, Lesson 4</p>