



**WASHINGTON**  
**Grade Level Expectations (GLE)**  
**Mathematics Grade 6**  
*Mathematics: Applications and Concepts Course 1* © 2006

OBJECTIVES	PAGE REFERENCES
<b>EALR 1: The student understands and applies the concepts and procedures of mathematics.</b>	
<b>Component 1.1: Understand and apply concepts and procedures from number sense.</b>	
<b>Number and numeration</b>	
<p><b>1.1.1 Understand the concept of integers as the set of natural numbers (1, 2, 3 ...), their opposites (-1, -2, -3 ...), and 0. W</b></p> <ul style="list-style-type: none"> <li>■ Illustrate integer values using models and pictures (e.g., temperature, elevators, net worth/debt, riding a bus or subway). [CU]</li> <li>■ Apply rules of divisibility to show if a quotient is an integer. [RL]</li> <li>■ Explain the meaning of integers and give examples.</li> <li>■ Identify the opposite of a given integer.</li> </ul>	<p>SE: 10-13, 294-298  <i>Hands-on Lab</i> 299  <i>Mid-Chapter Practice Test</i> 308 #1-#3  <i>Practice Test</i> 327 #3-#6</p> <p>TWE: DI 11, 295            B 294            I-CE 295            A 298</p>
<p><b>1.1.2 Understand the relative values of integers and non-negative rational numbers. W</b></p> <ul style="list-style-type: none"> <li>■ Compare different representations of non-negative rational numbers by implementing strategies (e.g., like denominators, changing to the same form). [RL, CU, MC]</li> <li>■ Identify equivalence between non-negative integers, fractions, percents, and decimals. [MC]</li> <li>■ Compare and order integer values and explain which is greater and why (e.g., place the integers on a number line). [CU]</li> <li>■ Represent and identify integers on a model (e.g., number line, fraction line, or decimal grid). [RL, CU]</li> </ul>	<p>SE: 198-201, 202-205, 206-209, 294-298, 303 #46-#48, 400-403, 404-406</p> <p>TWE: A 201            B 400            DI 401, 404</p>

OBJECTIVES	PAGE REFERENCES
<p><b>1.1.3 Apply properties of addition and multiplication to non-negative rational numbers. W</b></p> <ul style="list-style-type: none"> <li>■ Illustrate and explain the commutative and associative properties and why they work (e.g., use physical models, pictures). [CU]</li> <li>■ Use addition and multiplication properties to assist in computations (e.g., <math>5 \cdot 7 \cdot 6</math> can be rewritten as <math>5 \cdot 6 \cdot 7</math>, which is <math>30 \cdot 7</math> or 210).</li> <li>■ Determine whether a solution is accurate based on application of commutative, associative, and identity properties of addition and/or multiplication. [RL]</li> </ul>	<p>SE: 333-336, 339-342, 344-347  <i>Hands-on Lab</i> 332  <i>Mid-Chapter Practice Test</i> 348 #7-#10  <i>Study Guide and Review</i> 370 #1, #7-#14</p> <p>TWE: A 336, 347</p>
<p><b>1.1.4 Understand the concepts of ratio and percent. W</b></p> <ul style="list-style-type: none"> <li>■ Write ratios in part/part and part/whole relationships using objects, pictures, and symbols (e.g., using /, :, or "to" as representations for ratios). [CU]</li> <li>■ Represent equivalent ratios using objects, pictures, or symbols. [CU]</li> <li>■ Represent equivalent percentages using objects, pictures, and symbols. [CU]</li> <li>■ Identify percent as 100 equal-size parts of a set (e.g., 1% of 200 items is 2 items).</li> <li>■ Explain ratio and percents and give examples of each. [CU]</li> </ul>	<p>SE: 380-383, 386-389, 395-397  <i>Hands-on Lab</i> 384-385  <i>Mid-Chapter Practice Test</i> 398  <i>The Game Zone</i> 399</p> <p>TWE: DI 381  I-CE 381, 387  A 382</p>
<b>Computation</b>	
<p><b>1.1.5 Understand the meaning of multiplication and division on non-negative rational numbers. W</b></p> <ul style="list-style-type: none"> <li>■ Explain the meaning of multiplying and dividing non-negative fractions and decimals using words or visual or physical models (e.g., sharing a restaurant bill, cutting a board into equal-sized pieces, drawing a picture of an equation or situation). [CU, MC]</li> <li>■ Explain why multiplication of fractions can be done by multiplying denominators while addition of fractions requires finding common denominators. [CU]</li> <li>■ Use technology to demonstrate how multiplication and division with decimals affects place value.</li> </ul>	<p>SE: 135-138, 141-143, 144-147, 152-155, 261-264, 265-267, 272-275  <i>Hands-on Lab</i> 134, 139-140, 150-151, 259-260, 270-271</p>

OBJECTIVES	PAGE REFERENCES
<p><b>1.1.6 Apply computational procedures with fluency for addition and subtraction on non-negative rational numbers. W</b></p> <ul style="list-style-type: none"> <li>■ Find the sums or differences of non-negative fractions or decimals.</li> <li>■ Write and solve real-world problem situations to find sums or differences of decimals or fractions. [CU, MC]</li> <li>■ Use the least common multiple and the greatest common factor of whole numbers to solve problems with fractions (e.g., to find a common denominator, to add two fractions, or to find the simplified form for a fraction). [MC]</li> <li>■ Use addition and subtraction to solve real-world problems involving non-negative rational numbers. [SP]</li> <li>■ Solve multiple-step computations requiring one, two, or more different operations. [MC]</li> </ul>	<p>SE: 24-27, 121-124, 177-180, 194-197, 228-231, 235-238, 240-243, 244-247  <i>The Game Zone</i> 233  <i>Hands-on Lab</i> 234</p> <p>TWE: DI 178, 195</p>
<p><b>1.1.7 Understand and apply strategies and tools to complete tasks involving addition and subtraction on non-negative rational numbers.</b></p> <ul style="list-style-type: none"> <li>■ Select and justify the selection of appropriate strategies and tools (e.g., mental computation, estimation, calculators, and paper and pencil) to compute in a problem situation. [SP, CU]</li> <li>■ Describe strategies for mentally solving problems involving fractions and decimals. [CU]</li> <li>■ Use calculators to add and subtract with decimal numbers with precision to the thousandths place and beyond.</li> </ul>	<p>SE: 116-119, 121-124, 219-222, 223-225, 228-231, 235-238  <i>Hands-on Lab</i> 218  <i>Mid-Chapter Practice Test</i> 232 #6-#11</p> <p>TWE: TNT 122  A 123, 243</p>
<b>Estimation</b>	
<p><b>1.1.8 Apply estimation strategies to predict or determine the reasonableness of answers in situations involving addition and subtraction on non-negative rational numbers. W</b></p> <ul style="list-style-type: none"> <li>■ Identify when an approximation is appropriate. [MC]</li> <li>■ Apply estimation strategies prior to computation on whole numbers, decimals, and fractions to approximate an answer. [RL]</li> <li>■ Use estimation to verify the reasonableness of calculated results. [RL]</li> <li>■ Identify appropriate estimated answers for a given situation.</li> <li>■ Describe various strategies used during estimation involving fractions and decimals. [CU]</li> </ul>	<p>SE: 111-113, 116-119, 219-222, 223-225  <i>Problem-Solving Strategy</i> 156-157  <i>Prerequisite Skills</i> 592-593  <i>Extra Practice</i> 605</p> <p>TWE: B 111, 223  DI 220  A 222</p>

OBJECTIVES	PAGE REFERENCES
<b>Component 1.2: Understand and apply concepts and procedures from measurement.</b>	
<b>Attributes, units, and systems</b>	
<p><b>1.2.1 Understand the concept of volume and extend the concept of area to surface area of rectangular prisms. W</b></p> <ul style="list-style-type: none"> <li>■ Compare the relative capacity of two containers and explain the differences (e.g., paper cylinders formed horizontally and vertically and filled with popcorn). [RL]</li> <li>■ Represent the volume for given rectangular prisms using pictures or models. [CU]</li> <li>■ Compare the surface area of two different rectangular prisms.</li> <li>■ Describe and provide examples for surface area measurement (e.g., gift wrapping, painting a room, amount of material needed to build a box). [MC]</li> <li>■ Explain and give examples of how the area and surface area are related (e.g., surface area is the sums of the areas of all the sides of a rectangular prism). [CU, MC]</li> <li>■ Describe and compare the use of area and volume (e.g., covering and filling). [CU]</li> </ul>	<p>SE: 564-566, 570-573, 575-578 <i>Hands-on Lab</i> 567, 574</p> <p>TWE: A 565, 578 I-CE 571 DI 576</p>
<p><b>1.2.2 Understand the differences between square and cubic units. W</b></p> <ul style="list-style-type: none"> <li>■ Identify cubic units to measure volume (e.g., linking cubes, cubic centimeter).</li> <li>■ Identify and read incremental units for capacity (e.g., milliliters, cups, ounces).</li> <li>■ Use the appropriate units when describing a situation (e.g., five square meters of carpet, five cubic meters of water). [MC]</li> <li>■ Explain why volume is measured in cubic units. [CU, MC]</li> <li>■ Explain how the selected unit of length affects the size of cubic units (e.g., centimeter versus inch). [CU]</li> </ul>	<p>SE: 39-41, 470-473, 484-487, 570-573</p> <p>TWE: B 570 TNT 571 DI 471, 571</p>

OBJECTIVES	PAGE REFERENCES
<b>Procedures, precision, and estimation</b>	
<p><b>1.2.4 Understand and apply systematic procedures to measure volume and capacity for solid shapes. W</b></p> <ul style="list-style-type: none"> <li>■ Identify the attribute to be measured in the situation (e.g., volume or capacity).</li> <li>■ Choose the appropriate standard unit for measuring volume or capacity (e.g., cubic inches vs. cubic feet, cups vs. gallons).</li> <li>■ Select and use tools that match the unit.</li> <li>■ Count or compute to obtain the volume or capacity and label the measurement.</li> <li>■ Use volume and capacity to describe and compare figures (e.g., fill containers with cubes to find which has a greater volume). [RL, CU]</li> <li>■ Measure the capacity of containers using appropriate tools and label (e.g., graduated cylinders, measuring cups, tablespoons). [CU]</li> <li>■ Evaluate whether measurement has been done correctly. [RL]</li> </ul>	<p>SE: 470-473, 484-487, 570-573  <i>Mid-Chapter Practice Test</i> 482 #11-#17</p> <p>TWE: B 470  I-CE 471, 571  DI 471, 571  A 487, 573</p>
<p><b>1.2.6 Understand and apply strategies to obtain reasonable estimates of volume or capacity. W</b></p> <ul style="list-style-type: none"> <li>■ Identify situations in which estimated measures are sufficient.</li> <li>■ Estimate volume or capacity.</li> <li>■ Use estimation to justify reasonableness of a volume of a rectangular prism. [RL]</li> <li>■ Estimate a measurement of volume or capacity using standard or non-standard units (e.g., estimate the capacity of a bowl in cups and handfuls). [SP]</li> <li>■ Use or describe a process to find a reasonable estimate of volume or capacity (e.g., fill a container with rice or popcorn). [CU]</li> </ul>	<p>SE: 484-487, 570-573  <i>Study Guide and Review</i> 499 #35-#41</p> <p>TWE: I-CE 485, 571 #2  DI 485  A 573</p>
<b>Component 1.3: Understand and apply concepts and procedures from geometric sense.</b>	
<b>Properties and relationships</b>	
<p><b>1.3.1 Understand the characteristics of circles and rectangular prisms. W</b></p> <ul style="list-style-type: none"> <li>■ Name and sort circles or rectangular prisms according to their attributes (faces, edges, radii, base, parallel faces). [RL]</li> <li>■ Draw a figure with given characteristics (e.g., the set of points equidistant from a given point). [CU]</li> <li>■ Identify lines of symmetry in rectangular prisms.</li> <li>■ Explain lines of symmetry for circles. [CU]</li> <li>■ Describe the relationship between the diameter and the radius of a circle. [CU]</li> </ul>	<p>SE: 161-164, 528-531, 536 #25-#27, 564-566, 570-571  <i>Hands-on Lab</i> 567</p> <p>TWE: DI 162  A 164  B 528</p>

OBJECTIVES	PAGE REFERENCES
<p><b>1.3.2 Apply understanding of angles and polygons. W</b></p> <ul style="list-style-type: none"> <li>■ Identify geometric figures and concepts in nature and art (e.g., triangle in architecture, rhombus in beadwork, culturally relevant textiles, quilts). [MC]</li> <li>■ Combine polygons to create given two-dimensional figures and represent them on grid paper (e.g., use all pieces of tangrams to create a square). [SP, RL, CU]</li> <li>■ Create a three-dimensional shape given its net or draw the net of a given three-dimensional shape. [RL]</li> <li>■ Find the missing measure of an angle using the properties of parallel lines, perpendicular lines, vertical and corresponding angles.</li> <li>■ Find the missing angle given all but one of the angles of a polygon. [RL]</li> </ul>	<p>SE: 506-509, 510-512, 522-525, 554 #18-#19  <i>Hands-on Lab</i> 384-385, 526-527, 537, 574</p> <p>TWE: DI 523  A 525</p>
<b>Locations and transformations</b>	
<p><b>1.3.3 Understand the relative location of integers on a number line. W</b></p> <ul style="list-style-type: none"> <li>■ Show the order of a given set of integers on a number line. [CU]</li> <li>■ Identify the point of final destination given directions for movement on a number line including positive and negative numbers (vertical or horizontal) (e.g., temperature variation at different times of the day, bank accounts, gain and loss of weight). [MC]</li> <li>■ Determine the distance between any two integers on a number line. [RL]</li> <li>■ Describe relative location of points and objects on a number line with both positive and negative numbers. [CU]</li> <li>■ Identify objects on a number line based on given numeric locations.</li> </ul>	<p>SE: 294-298, 300-303, 304-307, 320-323  <i>The Game Zone</i> 309  <i>Study Guide and Review</i> 324-325 #8-#33</p> <p>TWE: I-CE 295 #3, #5  DI 305  A 307, 323</p>

OBJECTIVES	PAGE REFERENCES
<p><b>1.3.4 Apply understanding of rotations (turns) to two-dimensional figures. W</b></p> <ul style="list-style-type: none"> <li>■ Apply rotations (turns) of <math>90^{\circ}</math> or <math>180^{\circ}</math> to a simple two-dimensional figure.</li> <li>■ Create a design using (<math>90^{\circ}</math>, <math>180^{\circ}</math>, <math>270^{\circ}</math>, <math>360^{\circ}</math>) rotations (turns) of a shape. [SP, MC]</li> <li>■ Show how a shape has been rotated by <math>90^{\circ}</math> or <math>180^{\circ}</math>. [CU]</li> <li>■ Describe a rotation so that another person could draw it. [CU]</li> <li>■ Identify the coordinates of objects that have been rotated <math>90^{\circ}</math>, <math>180^{\circ}</math>, or <math>270^{\circ}</math> on a coordinate grid.</li> <li>■ Determine whether an object has been translated or rotated on a coordinate grid.</li> </ul>	<p>SE: 528-531, 569 #7, 536 #16  <i>Hands-on Lab</i> 532-533, 537  <i>Study Guide and Review</i> 540 #28-#31</p>
<b>Component 1.4: Understand and apply concepts and procedures from probability and statistics.</b>	
<b>Probability</b>	
<p><b>1.4.1 Understand probability as a ratio between and including 0 and 1. W</b></p> <ul style="list-style-type: none"> <li>■ Determine whether a real-life event has zero probability, 50% probability, or 100% probability of occurring. [MC]</li> <li>■ Express probabilities as fractions or decimals between 0 and 1 and percents between 0 and 100. [CU]</li> <li>■ Translate between representations of probability (e.g., translate a probability of 6 out of 16 to <math>\frac{3}{8}</math> or 37.5%). [MC]</li> </ul>	<p>SE: 428-431, 433-436, 450-453  <i>The Game Zone</i> 443  <i>Hands-on Lab</i> 432  <i>Mid-Chapter Practice Test</i> 442 #3-#6</p> <p>TWE: B 428  I-CE 429  DI 429</p>
<p><b>1.4.2 Understand various ways to determine outcomes of events or situations. W</b></p> <ul style="list-style-type: none"> <li>■ Determine and use the probabilities of the outcome of a single event.</li> <li>■ Represent or describe all possible outcomes of experiments (e.g., an organized list, a table, a tree diagram, or a sample space). [RL, CU]</li> <li>■ Calculate probability for an event (e.g., pulling colored or numbered balls from a bag, drawing a card, rolling a six on a number cube, spinning a spinner, etc.).</li> <li>■ Determine all possible outcomes (sample space) of an experiment or event (e.g., all different choices a person has to wear one top and one skirt from three different tops and two different skirts). [CU]</li> </ul>	<p>SE: 428-431, 433-436, 450-453  <i>Hands-on Lab</i> 432  <i>The Game Zone</i> 443  <i>Mid-Chapter Practice Test</i> 442 #7-#10</p> <p>TWE: DI 451  A 436, 453</p>

OBJECTIVES	PAGE REFERENCES
<b>Statistics</b>	
<p><b>1.4.3 Analyze how data collection methods affect the data collected. W</b></p> <ul style="list-style-type: none"> <li>■ Evaluate how a question or data collection method may affect the data. [RL]</li> <li>■ Determine whether a sampling method will result in a representative sample.</li> <li>■ Describe a data collection method that will provide an unbiased sample. [CU]</li> <li>■ Compare data collection methods for a given situation to determine fairness of the method (e.g., compare a phone survey, a web survey, and a personal interview survey). [RL, MC]</li> <li>■ Identify different ways of selecting a sample (e.g., convenience sampling, response to a survey, random sampling) and explain which method makes a sample more representative for a population. [SP, MC]</li> </ul>	<p>SE: 438-441, 447 #21, 453 #33  <i>Hands-on Lab</i> 437  <i>Mid-Chapter Practice Test</i> 442 #10, 12  <i>Study Guide and Review</i> 455 #22-#24</p> <p>TWE: B 438  A 441</p>
<p><b>1.4.4 Apply measures of central tendency to interpret a set of data. W</b></p> <ul style="list-style-type: none"> <li>■ Determine when it is appropriate to use mean, median, or mode and why a specific measure provides the most useful information in a given context. [RL, CU]</li> <li>■ Use mean, median, and mode to explain familiar situations (e.g., the heights of students in the class, the hair color of students in the class). [CU, MC]</li> <li>■ Find the missing number given a mean for a data set with a missing element (e.g., given a set of homework scores and the desire to earn an average score of 80%, determine what score the student must earn on the next assignment). [SP, RL]</li> </ul>	<p>SE: 76-78, 80-83, 89 #13-#18  <i>Spreadsheet Investigation</i> 79  <i>Study Guide and Review</i> 92 #17-#21  <i>Practice Test</i> 93 #3-#7</p> <p>TWE: B 80  I-CE 81  A 83</p>

OBJECTIVES	PAGE REFERENCES
<p><b>1.4.5 Understand how to organize, display, and interpret data in text from single line graphs and scatter plots. W</b></p> <ul style="list-style-type: none"> <li>■ Justify a choice of a graph type for a given situation using information about the type of data. [RL, CU, MC]</li> <li>■ Read and interpret data from single line graphs and scatter plots, and determine when the use of these graphs is appropriate. [RL, CU]</li> <li>■ Use an appropriate representation to display data (e.g., table, graphs) given a particular situation and audience. [MC, CU]</li> <li>■ Make inferences based on a set of data. [RL]</li> <li>■ Use data from a table, graph, or chart to support an interpretation. [RL, CU]</li> <li>■ Use technology to generate bar graphs, line graphs, and scatter plots from tables of data. [MC]</li> </ul>	<p>SE: 50-53, 56-59, 62-65, 66-69, 86-89  <i>Problem-Solving Strategy</i> 54-55  <i>Spreadsheet Investigation</i> 60-61</p> <p>TWE: DI 68, 87  I-CE 87  A 59</p>
<p><b>1.4.6 Evaluate a data set to determine how it can be, or has been, used to support a point of view. W</b></p> <ul style="list-style-type: none"> <li>■ Compare graphs to data sets (e.g., given unlabeled graphs and data sets, match the appropriate data to a graph). [RL]</li> <li>■ Judge the appropriateness of inferences made from a set of data and support the judgment. [CU, MC]</li> <li>■ Identify claims based on statistical data and assess the validity of the claims. [CU, RL]</li> <li>■ Explain whether the scale on a graph accurately represents the data. [CU]</li> <li>■ Compare or evaluate two or more interpretations of the same set of data for accuracy.</li> </ul>	<p>SE: 66-69, 86-89  <i>Mid-Chapter Practice Test</i> 70 #6-#9</p> <p>TWE: DI 68, 87  I-CE 67, 87-88  A 69, 89</p>

OBJECTIVES	PAGE REFERENCES
<b>Component 1.5: Understand and apply concepts and procedures from algebraic sense.</b>	
<b>Patterns, functions, and other relations</b>	
<p><b>1.5.1 Apply rules for number patterns based on two arithmetic operations. W</b></p> <ul style="list-style-type: none"> <li>■ Recognize or extend patterns and sequences using operations that alternate between terms. [RL]</li> <li>■ Create, explain, or extend number patterns involving two related sets of numbers and two operations including addition, subtraction, multiplication, or division. [CU]</li> <li>■ Use rules for generating number patterns (e.g., Fibonacci sequence, bouncing ball) to model real-life situations. [MC]</li> <li>■ Use technology to generate patterns based on two arithmetic operations. [SP]</li> <li>■ Supply missing elements in a pattern based on two operations.</li> <li>■ Select or create a pattern that is equivalent to a given pattern.</li> </ul>	<p>SE: 282-284  <i>Problem-Solving Strategy</i> 280-281  <i>Hands-on Lab</i> 360-361</p> <p>TWE: B 280, 282  DI 280, 282  A 281, 284</p>
<p><b>1.5.2 Apply understanding of patterns involving two arithmetic operations to develop a rule. W</b></p> <ul style="list-style-type: none"> <li>■ Describe the rule for a pattern with combinations of two arithmetic operations in the rule.</li> <li>■ Identify patterns involving combinations of operations in the rule, including exponents (e.g., 2, 5, 11, 23). [RL, MC]</li> <li>■ Represent a situation with a rule involving a single operation (e.g., presidential elections occur every four years; when will the next three elections occur after a given year?). [CU, MC]</li> <li>■ Create a pattern involving two operations using a given rule.</li> </ul>	<p>SE: 282-284, 362-365, 369 #23-#25  <i>Problem-Solving Strategy</i> 280-281  <i>Standardized Test Practice</i> 375 #21</p> <p>TWE: I-CE 363  A 369</p>
<b>Symbols and representations</b>	
<p><b>1.5.3 Apply understanding of equalities and inequalities to interpret and represent relationships between quantities. W</b></p> <ul style="list-style-type: none"> <li>■ Express relationships between quantities (decimals, percents, and integers) using =, ≠, &lt;, &gt;, ≤, and ≥ [CU]</li> <li>■ Match a given situation to the correct inequality or equality. [MC]</li> <li>■ Express relationships between non-negative rational numbers using symbols.</li> <li>■ Write an inequality with a single variable to match a particular situation. [RL, CU]</li> </ul>	<p>SE: 37 #40-#43, 108-110, 198-201, 294-298  <i>Mid-Chapter Practice Test</i> 308 #7-#9  <i>Hands-on Lab</i> 354</p> <p>TWE: B 108  I-CE 199 #1  DI 199</p>

OBJECTIVES	PAGE REFERENCES
<p><b>1.5.4 Apply understanding of tables, graphs, expressions, equations, or inequalities to represent situations involving two arithmetic operations. W</b></p> <ul style="list-style-type: none"> <li>■ Translate a situation involving multiple arithmetic operations into algebraic form using equations, tables, and graphs. [RL, CU, MC]</li> <li>■ Identify or describe a situation involving two arithmetic operations that matches a given graph. [CU, MC]</li> <li>■ Represent an equation, expression, or inequality using a variable in place of an unknown number. [CU]</li> <li>■ Represent or evaluate algebraic expressions involving a single variable. [RL, CU]</li> <li>■ Represent an equation or expression using a variable in place of an unknown number. [RL, CU]</li> <li>■ Identify a situation that corresponds to a given equation or expression.</li> </ul>	<p>SE: 28-31, 34-37, 355-357, 366-369 <i>Problem-Solving Strategy</i> 358-359</p> <p>TWE: B 28 I-CE 29, 356 A 37, 369</p>
<b>Evaluating and solving</b>	
<p><b>1.5.5 Understand and apply procedures to evaluate expressions and formulas. W</b></p> <ul style="list-style-type: none"> <li>■ Evaluate simple expressions and formulas using pictures and/or symbols. [RL]</li> <li>■ Represent and evaluate algebraic expressions involving a single variable. [RL, CU]</li> <li>■ Evaluate an expression by substituting non-negative values for variables (e.g., find the value of <math>3y + 2</math> when <math>y = 3</math>). [RL, MC]</li> <li>■ Determine the expression that represents a given situation. [MC, CU]</li> <li>■ Describe a situation that fits with a given expression. [RL, MC, CU]</li> </ul>	<p>SE: 28-31, 37 #46-#48, 39-41 <i>Study Guide and Review</i> 44 #38-#47 <i>Practice Test</i> 45 #9-#21 <i>Standardized Test Practice</i> 46-47 #8, #21, #23, #24</p> <p>TWE: A 27 I-CE 29 DI 29</p>
<p><b>1.5.6 Understand and apply a variety of strategies to solve one-step equations. W</b></p> <ul style="list-style-type: none"> <li>■ Solve one-step equations using pictures and symbols.</li> <li>■ Solve one-step single variable equations using any strategy (e.g., what number goes in the mystery box?).</li> <li>■ Solve real-world situations involving single variable equations. [CU, MC]</li> <li>■ Explain a strategy for solving a single variable equation. [CU]</li> <li>■ Write and solve one-step single variable equations for a given situation. [MC]</li> </ul>	<p>SE: 339-342, 344-347, 350-353 <i>Hands-on Lab</i> 337-338, 343 <i>Mid-Chapter Practice Test</i> 348 #14-#25 <i>The Game Zone</i> 349 <i>Problem-Solving Strategy</i> 358-359</p> <p>TWE: DI 340 B 344</p>

OBJECTIVES	PAGE REFERENCES
<b>EALR 2: The student uses mathematics to define and solve problems.</b>	
<b>Component 2.1: Understand problems.</b>	
<p><b>2.1.1 Analyze a situation to define a problem. W</b></p> <ul style="list-style-type: none"> <li>■ Use strategies to become informed about the situation (e.g., listing information, asking questions).</li> <li>■ Summarize the situation (e.g., there is 100 feet of fencing and we want to enclose as much land, in the shape of a rectangle, as possible).</li> <li>■ Determine whether enough information is given to find a solution (e.g., list what is needed to find the area of a rectangle and compare to the list of known things).</li> <li>■ Determine whether information is missing or extraneous (e.g., compare the list of known things to the list of needed things to see if there are things that are not needed).</li> <li>■ Define the problem (e.g., find the rectangle with largest area with a perimeter of 100 feet).</li> </ul>	<p>SE: 6-9  <i>Study Skill 38</i>  <i>Problem-Solving Strategy 125-126, 192-193</i></p> <p>TWE: B 6  DI 7  A 9, 193</p>
<b>Component 2.2: Apply strategies to construct solutions.</b>	
<p><b>2.2.1 Apply strategies, concepts, and procedures to devise a plan to solve the problem. W</b></p> <ul style="list-style-type: none"> <li>■ Organize relevant information from multiple sources to devise a plan (e.g., create a list of known and unknown information; create a table of values for length, width, and area of rectangles with perimeter of 100).</li> <li>■ Select and apply appropriate mathematical tools for a situation (e.g., guess and check, creating tables of values [with or without technology], examine relationships between sides of a rectangle and area).</li> </ul>	<p>SE: 6-9  <i>Study Skills 38</i>  <i>Problem-Solving Strategy 32-33, 54-55, 125-126, 156-157, 192-193, 226-227, 280-281, 314-315, 358-359, 413-414, 448-449</i></p>
<p><b>2.2.2 Apply mathematical tools to solve the problem. W</b></p> <ul style="list-style-type: none"> <li>■ Implement the plan devised to solve the problem (e.g., in a table of values of lengths, widths, and areas find the one that shows the largest area; check smaller increments to see if this is the largest that works).</li> <li>■ Identify when an approach is unproductive and modify or try a new approach (e.g., while guess and check may give some sense of a neighborhood of values, it is less efficient than a more organized method).</li> <li>■ Check the solution to see if it works (e.g., if the solution gives a perimeter that is not 100, it makes no sense in the given problem).</li> </ul>	<p>SE: 6-9  <i>Study Skills 38</i>  <i>Problem-Solving Strategy 32-33, 125-126, 156-157, 413-414, 488-489</i></p> <p>TWE: B 488</p>

OBJECTIVES	PAGE REFERENCES
<b>EALR 3: The student uses mathematical reasoning.</b>	
<b>Component 3.1: Analyze information.</b>	
<p><b>3.1.1 Analyze information from a variety of sources to interpret and compare information.</b> <b>W</b></p> <ul style="list-style-type: none"> <li>■ Identify claims based on statistical data and evaluate the validity of the claims. [1.4.5]</li> <li>■ Read and interpret data from single line graphs and scatter plots and determine when the use of these graphs is appropriate. [1.4.5]</li> <li>■ Use volume and capacity to describe and compare figures (e.g., fill containers with cubes to find which has a greater volume). [1.2.4]</li> </ul>	<p>SE: 56-59, 66-69, 86-89, 570-573 <i>Study Guide and Review</i> 91 #12-#13, 92 #22-#23</p> <p>TWE: B 570 A 69, 89 DI 57, 87</p>
<b>Component 3.2: Make predictions, inferences, conjectures, and draw conclusions.</b>	
<p><b>3.2.1 Apply prediction and inference skills to make or evaluate conjectures.</b> <b>W</b></p> <ul style="list-style-type: none"> <li>■ Identify claims based on statistical data and evaluate the validity of the claims. [1.4.5]</li> <li>■ Predict a future element in a relation (e.g., find the fifteenth term in a pattern). [1.5.1]</li> </ul>	<p>SE: 66-69, 75 #32, 78 #23, 282-284, 438-441 <i>Mid-Chapter Practice Test</i> 70 #9 <i>Problem-Solving Strategy</i> 280-281</p> <p>TWE: B 66 I-CE 67 A 69, 284</p>
<p><b>3.2.2 Apply the skills of drawing conclusions and support those conclusions using evidence.</b> <b>W</b></p> <ul style="list-style-type: none"> <li>■ Draw conclusions from displays, texts, or oral discussions and justify those conclusions with logical reasoning or other evidence (e.g., read a newspaper article or ad; draw a conclusion and support that conclusion with evidence from the article or elsewhere).</li> </ul>	<p>SE: 66-69, 86-89, 438-441 <i>Problem-Solving Strategy</i> 54-55 <i>Standardized Test Practice</i> 95 #14-#15</p> <p>TWE: B 56 DI 63, 438 I-CE 67, 87-88</p>
<p><b>3.2.3 Analyze procedures and results in various situations.</b> <b>W</b></p> <ul style="list-style-type: none"> <li>■ Represent and interpret all possible outcomes of experiments (e.g., an organized list, a table, a tree diagram, or a sample space). [1.4.2]</li> </ul>	<p>SE: 428-431, 433-436, 438-441, 450-453 <i>Hands-on Lab</i> 432 <i>Problem-Solving Strategy</i> 192-193</p> <p>TWE: I-CE 434 A 436</p>

OBJECTIVES	PAGE REFERENCES
<b>Component 3.3: Verify results.</b>	
<p><b>3.3.1 Analyze procedures and information used to justify results using evidence. W</b></p> <ul style="list-style-type: none"> <li>■ Find and compare rectangular prisms that have a given volume (e.g., if two rectangular prisms have the same volume and one has twice the height of the other, determine how the areas of their bases compare). [1.2.5]</li> <li>■ Apply estimation strategies prior to computation of whole numbers, decimals, and fractions to determine reasonableness of answers. [1.1.8]</li> <li>■ Identify different ways of selecting a sample (e.g., convenience sampling, response to a survey, random sampling) and which method makes a sample more representative for a population. [1.4.3]</li> </ul>	<p>SE: 111-113, 116-119, 219-222, 223-225, 438-441, 570-573  <i>Problem-Solving Strategy</i> 156-157  <i>Mid-Chapter Practice Test</i> 442 #10</p> <p>TWE: I-CE 439 #1  A 441</p>
<p><b>3.3.2 Analyze thinking and mathematical ideas using models, known facts, patterns, relationships, or counterexamples. W</b></p> <ul style="list-style-type: none"> <li>■ Identify claims based on statistical data and evaluate the validity of the claims. [1.4.5]</li> </ul>	<p>SE: 66-69, 86-89, 438-441, 450-453</p> <p>TWE: I-CE 67, 87  DI 87</p>
<b>EALR 4: The student communicates knowledge and understanding in both everyday and mathematical language.</b>	
<b>Component 4.1: Gather information.</b>	
<p><b>4.1.1 Apply a planning process to collect information for a given purpose. W</b></p> <ul style="list-style-type: none"> <li>■ Use mean, median, and mode to explain familiar situations (e.g., the heights of students in the class; the hair color of students in the class). [1.4.4]</li> <li>■ Decide on information needed to create a report on a mathematical topic (e.g., compare the predicted rainfall in a given period with the actual rainfall).</li> </ul>	<p>SE: 76-78, 80-83, 86-89  <i>Spreadsheet Investigation</i> 79</p> <p>TWE: DI 51  I-CE 81-82</p>
<p><b>4.1.2 Understand how to extract information from multiple sources using reading, listening, and observation. W</b></p> <ul style="list-style-type: none"> <li>■ Use mean, median, and mode to explain situations (e.g., the heights of students in the class; hair color of students in the class; favorite movie of students in the class; most watched movie in a specific time frame). [1.1.4]</li> </ul>	<p>SE: 76-78, 80-83, 89 #13-#18  <i>Spreadsheet Investigation</i> 79  <i>Study Guide and Review</i> 92 #17-#21  <i>Practice Test</i> 93 #3-#7</p> <p>TWE: B 80  I-CE 81  A 83</p>

OBJECTIVES	PAGE REFERENCES
<b>Component 4.2: Organize, represent, and share information.</b>	
<p><b>4.2.1 Apply organizational skills for a given purpose. W</b></p> <ul style="list-style-type: none"> <li>■ Show the order of the set of integers on a number line with both positive and negative numbers (e.g., organize the given birth years of the following Arabic kings on a number line). [1.3.3]</li> </ul>	<p>SE: 294-298, 300-303, 304-307, 320-323  <i>The Game Zone</i> 309  <i>Study Guide and Review</i> 324-325 #8-#33</p> <p>TWE: I-CE 295 #3, #5  DI 305  A 307, 323</p>
<p><b>4.2.2 Apply communication skills to clearly and effectively express or present ideas and situations using mathematical language or notation. W</b></p> <ul style="list-style-type: none"> <li>■ Articulate various strategies used during estimation involving fractions and decimals. [1.1.8]</li> <li>■ Clearly explain, describe, or represent mathematical information in a pictorial, tabular, graphical, two- or three-dimensional drawing, or other form as appropriate for the mathematical information (e.g., time, distance, categories), audience, and/or purpose, such as to perform or persuade, with notation and labels as needed.</li> <li>■ Use an appropriate representation to display data (e.g., table, graphs) given a particular situation and audience. [1.4.5]</li> </ul>	<p>SE: 50-53, 56-59, 62-65, 66-69, 86-89, 111-113, 116-119, 219-222, 223-225  <i>Problem-Solving Strategy</i> 54-55, 156-157</p> <p>TWE: B 111, 223  DI 68, 87, 220  A 59, 222</p>
<b>EALR 5: The student understands how mathematical ideas connect within mathematics, to other subject areas, and to real-life situations.</b>	
<b>Component 5.1: Relate concepts and procedures within mathematics.</b>	
<p><b>5.1.1 Apply concepts and procedures from a variety of mathematical areas in a given problem or situation. W</b></p> <ul style="list-style-type: none"> <li>■ Translate a situation involving multiple arithmetic operations into algebraic form using equation, table, and graphs. [1.5.4]</li> <li>■ Given a set of data, compare various representations (e.g., table, graph, rule) for a given situation. [1.4.5]</li> </ul>	<p>SE: 28-31, 34-37, 50-53, 56-59, 62-65, 66-69, 86-89, 355-357, 366-369  <i>Problem-Solving Strategy</i> 54-55, 358-359</p> <p>TWE: B 28  I-CE 29, 87, 356  A 37, 369</p>
<p><b>5.1.2 Apply different mathematical models and representations to the same situation. W</b></p> <ul style="list-style-type: none"> <li>■ Represent equivalent ratios or given percentages using objects, pictures, and symbols. [1.1.4]</li> <li>■ Match a graph with a data set. [1.5.4]</li> </ul>	<p>SE: 366-369, 380-383, 386-389, 395-397  <i>Hands-on Lab</i> 106-107, 384-385  <i>Mid-Chapter Practice Test</i> 398  <i>The Game Zone</i> 399</p> <p>TWE: DI 381  I-CE 381, 387  A 369, 382</p>

OBJECTIVES	PAGE REFERENCES
<b>Component 5.2: Relate mathematical concepts and procedures to other disciplines.</b>	
<p><b>5.2.1 Analyze mathematical patterns and ideas to extend mathematical thinking and modeling to other disciplines.</b></p> <ul style="list-style-type: none"> <li>■ Identify geometric figures and concepts in nature and art (e.g., triangle in architecture, rhombus in beadwork). [1.3.2]</li> <li>■ Show the order of the set of integers on a number line with both positive and negative numbers (e.g., organize and graph on a number line the given birth years of the given Arabic kings). [1.3.3]</li> <li>■ Read a micrometer to the nearest hundredth of an inch or centimeter, depending on the tool. [1.2.4]</li> <li>■ Create a physical activity plan that results in 2500 calories expended over the week.</li> <li>■ Calculate the ratio of various parts of an artwork (length of eyes to ears).</li> <li>■ Discuss the difference between <math>\frac{3}{4}</math> time and <math>\frac{6}{8}</math> time and how it relates to a model.</li> </ul>	<p>SE: 9 #9, 16 #12, 119 #41, 123 #31, 297 #48-#52, 303 #37-#41, 417 #24  <i>Interdisciplinary Project 3</i>, 97, 173, 291, 377  <i>Practice Test 129</i> #19</p>
<p><b>5.2.2 Know the contributions of individuals and cultures to the development of mathematics.</b></p> <ul style="list-style-type: none"> <li>■ Recognize the contributions of a variety of people to the development of mathematics (e.g., research the concept of the golden ratio).</li> </ul>	<p>SE: <i>Hands-on Lab 106-107</i></p>
<b>Component 5.3: Relate mathematical concepts and procedures to real-world situations.</b>	
<p><b>5.3.1 Understand that mathematics is used in daily life and extensively outside the classroom.</b></p> <ul style="list-style-type: none"> <li>■ Write and solve real-world problem situations to find sums or differences of decimals or fractions (e.g., explain how to find the change received from a \$50.00 bill when a given amount of CD's and tapes with prices are bought). [1.1.6]</li> <li>■ Calculate the ratio of bicycle gears.</li> </ul>	<p>This objective is met throughout the text; applicable real-world problems are found with each lesson.  SE: <i>Interdisciplinary Project 3</i>, 97, 173, 291, 377  <i>Mixed Problem Solving 624-637</i></p>
<p><b>5.3.2 Understand that mathematics is used within many occupations or careers.</b></p> <ul style="list-style-type: none"> <li>■ Explain or describe the mathematics necessary to get and perform in a particular job (e.g., complete a project that researches how mathematics is used in careers or occupations of interest).</li> <li>■ Identify where in a particular career mathematics is used (e.g., police work — looking for patterns in fingerprints or crimes).</li> </ul>	<p>SE: <i>Real-Life Careers 19, 87, 122, 142, 183, 220, 277, 363, 387, 439, 486, 523, 547</i></p>

## Codes Used for TWE Pages

A	Assess
B	Bellringer
DI	Daily Intervention
I-CE	In-Class Examples
TNT	Tips for New Teachers