



Mathematics

Applications and Concepts

Course 2

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STANDARDS	PAGE REFERENCES
<p>Standard 1-Students engage in the mathematical processes of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology.</p> <p><i>These processes are essential to all mathematics and must be incorporated in all other mathematics standards.</i></p> <p>End of Grade 8</p>	
<p>1. Formulate and solve multi-step and nonroutine problems using a variety of strategies. Generalize methods to new problem situations.</p>	<p>Student Edition: 6-9 <i>Problem-Solving Strategy</i> 22-23, 58-59, 132-133, 164-165, 201-202, 252-253, 302-303, 333-334, 391-392, 444-445, 496-497, 518-519</p> <p>Teacher Wraparound Edition: B 6; DI 17</p>
<p>2. Select and apply appropriate estimation strategies throughout the problem-solving process.</p>	<p>Student Edition: 240-243, 334-337, 475-477 <i>Prerequisite Skills</i> 558</p> <p>Teacher Wraparound Edition: A 243, 337, 476; DI 241, 335, 476; I-CE 241-242, 335, 476</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 303, 435 <i>Practice: Skills</i> 304, 436 <i>Practice: Word Problems</i> 305, 437</p>

STANDARDS	PAGE REFERENCES
<p>3. Interpret and communicate mathematical ideas and logical arguments using correct mathematical terms and notations.</p>	<p>Student Edition: 6-9, 60-63, 92-95 <i>Hands-on Lab 37</i></p> <p>Teacher Wraparound Edition: A 9, 63, 95; B 6, 106; DI 17, 109; I-CE 7-8</p> <p>Teacher Resources: <i>Practice: Word Problems 3, 104</i></p>
<p>4. Recognize and investigate the relevance and usefulness of mathematics through applications, both in and out of school.</p>	<p>Student Edition: 304-308 <i>Interdisciplinary Project 3, 95, 103, 185, 285</i> <i>When am I ever going to use this? 288, 297, 312, 370</i></p> <p>Teacher Wraparound Edition: I-CE 19 #5; MIC 3</p> <p>Teacher Resources: <i>Practice: Word Problems 8, 21</i></p>
<p>5. Select and use appropriate technology to enhance mathematical understanding. Appropriate technology may include, but is not limited to, paper and pencil, calculator, computer, and data collection devices.</p>	<p>Student Edition: 471 <i>Study Tip 44, 120</i> <i>Graphing Calculator Investigation 84</i> <i>Spreadsheet Investigation 90-91, 309, 361, 455, 523</i></p> <p>Teacher Wraparound Edition: DI 198</p>
<p>Standard 2-Students demonstrate understanding of and an ability to use numbers and operations.</p>	
<p><i>An understanding of numbers and how they are used is necessary in the everyday world. Computational skills and procedures should be developed in context so the learner perceives them as tools for solving problems.</i></p>	
<p>1. Use the four basic operations with whole numbers, fractions, decimals, and integers.</p>	<p>Student Edition: 120-124, 128-131, 134-137, 138-141, 244-247, 248-251, 254-257, 264-266 <i>Hands-on Lab 118-119, 128-129</i> <i>Prerequisite Skills 559, 560, 562</i></p> <p>Teacher Wraparound Edition: B 254; I-CE 245, 249, 265</p>

STANDARDS	PAGE REFERENCES
<p>2. Use mental mathematics and number sense in using order of operations, and order relations for whole numbers, fractions, decimals, and integers.</p>	<p>Student Edition: 10-13, 14-17, 21 #54, 27 #53, 33 #51 <i>Mid-Chapter Practice Test 28 #4-14</i> <i>The Game Zone 29</i> <i>Extra Practice 564-565</i></p> <p>Teacher Wraparound Edition: A 13, 17; B 10; DI 11; I-CE 11, 15</p>
<p>3. Use the relationships and applications of ratio, proportion, percent, and scientific notation.</p>	<p>Student Edition: 43-45, 57 #22-25, 288-291, 292-295, 297-300, 304-308 <i>Hands-on Lab 296</i> <i>Spreadsheet Investigation 309</i></p> <p>Teacher Wraparound Edition: A 45, 291, 295, 300, 308; B 43, 288, 292, 297; I-CE 44, 289, 293, 298</p> <p>Teacher Resources: <i>Study Guide and Intervention 11</i> <i>Practice: Skills 12</i> <i>Practice: Word Problems 13</i></p>
<p>4. Develop and apply number theory concepts (e.g., primes, factors and multiples) in real-world and mathematical problem situations.</p>	<p>Student Edition: 197-200, 203-206, 224-226 <i>Hands-on Lab 196</i></p> <p>Teacher Wraparound Edition: A 200, 206, 226; DI 198, 225; I-CE 204</p> <p>Teacher Resources: <i>Study Guide and Intervention 243, 248, 273</i> <i>Practice: Skills 244, 249, 274</i> <i>Practice: Word Problems 225, 250, 275</i></p>

STANDARDS	PAGE REFERENCES
<p>Standard 3-Students use algebraic concepts, processes, and language to model and solve a variety of real-world and mathematical problems.</p>	
<p><i>Algebra is the language of mathematics and science. Through the use of variables and operations, algebra allows students to form abstract models from contextual information.</i></p>	
<p>1. Understand the concepts of variable, expression and equation.</p>	<p>Student Edition: 18-21, 24-27, 150-152 <i>The Game Zone</i> 29</p> <p>Teacher Wraparound Edition: A 21, 27; B 18, 24; DI 19, 25, 150; I-CE 19, 25, 151</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 16, 21 <i>Practice: Skills</i> 17, 22 <i>Practice: Word Problems</i> 18, 23</p>
<p>2. Represent situations and number patterns using tables, graphs, verbal rules, equations, and models.</p>	<p>Student Edition: 34-36, 41 #47-50, 45 #50, 150-152, 177-181 <i>Hands-on Lab</i> 37 <i>Problem-Solving Strategy</i> 132</p> <p>Teacher Wraparound Edition: A 36, 133; B 34, 132; DI 35, 133; I-CE 35</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 185, 210 <i>Practice: Skills</i> 186, 211 <i>Practice: Word Problems</i> 187, 212</p>
<p>3. Recognize and use the general properties of operations (e.g., the distributive property).</p>	<p>Student Edition: 30-33, 36 #30-32, 41 #51-54 <i>Study Guide and Review</i> 48 #40-43 <i>Practice Test</i> 49 #15-16 <i>Standardized Test Practice</i> 50 #6</p> <p>Teacher Wraparound Edition: A 33; B 30; DI 31; I-CE 35</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 26 <i>Practice: Skills</i> 27 <i>Practice: Word Problems</i> 28</p>

STANDARDS	PAGE REFERENCES
4. Solve linear equations using concrete, numerical and algebraic methods.	<p>Student Edition: 177-181, 185 #33-35 <i>Hands-on Lab</i> 176 <i>Study Guide and Review</i> 188 #54-62 <i>Standardized Test Practice</i> 190 #9, 191 #20 <i>Extra Practice</i> 573</p> <p>Teacher Wraparound Edition: A 181; I-CE 178-179</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 210 <i>Practice: Skills</i> 211 <i>Practice: Word Problems</i> 212</p>
5. Investigate inequalities and nonlinear relationships informally.	<p>Student Edition: 172-175, 181 #41-46 <i>Study Guide and Review</i> 187 #44-53 <i>Practice Test</i> 189 #9-10 <i>Standardized Test Practice</i> 191 #17, 19</p> <p>Teacher Wraparound Edition: B 172; DI 173; I-CE 173</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 205 <i>Practice: Skills</i> 206 <i>Practice: Word Problems</i> 207</p>
<p>Standard 4-Students demonstrate understanding of shape and an ability to use geometry.</p>	
<p><i>The study of geometry helps students represent and make sense of the world by discovering relationships and developing spatial sense.</i></p>	
1. Identify, describe, construct, and compare plane and solid geometric figures.	<p>Student Edition: 413-415, 422-425, 428-431, 434-437 <i>Hands-on Lab</i> 412, 416-417, 426-427, 432-433 <i>The Game Zone</i> 439</p> <p>Teacher Wraparound Edition: A 415, 431, 437; B 428; DI 429; I-CE 414, 429, 435</p>

STANDARDS	PAGE REFERENCES
<p>2. Understand and apply geometric properties and relationships (e.g., the Pythagorean Theorem).</p>	<p>Student Edition: 440-443, 479-482, 483-485, 489-492, 498-500 <i>Spreadsheet Investigation</i> 455 <i>Hands-on Lab</i> 478, 488 Teacher Wraparound Edition: A 443, 488; B 479, 483; DI 480; I-CE 480-481 Teacher Resources: <i>Study Guide and Intervention</i> 619 <i>Practice: Skills</i> 620 <i>Practice: Word Problems</i> 621</p>
<p>3. Represent geometric figures on a coordinate grid.</p>	<p>Student Edition: 112-115, 124 #64-67, 131 #60, 177-181, 450 #42-45, 451-454 <i>The Game Zone</i> 117 <i>Hands-on Lab</i> 176 Teacher Wraparound Edition: A 115, 181; B 112; DI 113; I-CE 113, 178-179 Teacher Resources: <i>Study Guide and Intervention</i> 573 <i>Practice: Skills</i> 574 <i>Practice: Word Problems</i> 575</p>
<p>4. Explore properties and transformations of geometric figures.</p>	<p>Student Edition: 451-454, 456-459 <i>Spreadsheet Investigation</i> 455 <i>Hands-on Lab</i> 460-461 <i>Study Guide and Review</i> 464 #26-29 <i>Standardized Test Practice</i> 467 #17-18 Teacher Wraparound Edition: A 454, 459; B 451; DI 451, 456; I-CE 452, 457 Teacher Resources: <i>Study Guide and Intervention</i> 573 <i>Practice: Skills</i> 574 <i>Practice: Word Problems</i> 575</p>
<p>5. Use geometry as a means of describing the physical world.</p>	<p>Student Edition: 415 #21-23, 423 Ex. 4, 431 #18-25, 442 #5, 443 #13-14 <i>When am I ever going to use this?</i> 413, 434 Teacher Wraparound Edition: B 413, 434; DI 423 Teacher Resources: <i>Practice: Word Problems</i> 560, 565, 570</p>

STANDARDS	PAGE REFERENCES
<p>Standard 5-Students demonstrate understanding of measurable attributes and an ability to use measurement processes.</p>	
<p><i>The first step in scientific investigation is understanding the measurable attributes of objects.</i></p>	
<p>1. Estimate, make, and use measurements to describe, compare, and/or contrast object in real-world situations.</p>	<p>Student Edition: 38-41, 267-269, 273 #26-27, 277 #23 <i>When am I ever going to use this?</i> 270, 275 Teacher Wraparound Edition: I-CE 268 Teacher Resources: <i>Practice: Word Problems</i> 38, 335, 340, 345</p>
<p>2. Select and use appropriate units and tools to measure to a level of accuracy required in a particular setting.</p>	<p>Student Edition: 38-41, 267-269, 270-273 <i>Hands-on Lab</i> 274, 412, 416-417, 432-433, 460-461 Teacher Wraparound Edition: B 267; DI 267</p>
<p>3. Apply the concepts of perimeter, area, volume and capacity, weight and mass, angle measure, time, and temperature.</p>	<p>Student Edition: 270-273, 275-277, 413-415, 483-485, 489-492, 493-495, 498-500, 520-522, 524-527, 532-535, 538-541 <i>Hands-on Lab</i> 274, 488, 530-531, 536-537 <i>Spreadsheet Investigation</i> 523</p>
<p>4. Demonstrate understanding of the structure and use of systems of measurement, including English and metric.</p>	<p>Student Edition: 38-41, 45 #47-49, 267-269, 273 #35-38, 277 #31 <i>Study Guide and Review</i> 48 #48-52, 280 #54-59 <i>Practice Test</i> 49 #17-19, 281 #20-22 <i>Standardized Test Practice</i> 50 #8, 51 #18, 282 #7 Teacher Wraparound Edition: A 269; B 267; DI 39, 267; I-CE 39, 268</p>
<p>5. Use the concepts of rates and other derived and indirect measurements.</p>	<p>Student Edition: 292-295, 297-300, 304-308, 440-443, 450 #36 <i>Hands-on Lab</i> 296 <i>Spreadsheet Investigation</i> 309 Teacher Wraparound Edition: A 443; B 292; DI 304; I-CE 293 Teacher Resources: <i>Study Guide and Intervention</i> 380, 568 <i>Practice: Skills</i> 381, 569 <i>Practice: Word Problems</i> 382, 570</p>

STANDARDS	PAGE REFERENCES
<p>6. Demonstrate relationships between formulas and procedures for determining area and volume.</p>	<p>Student Edition: 483-485, 489-492, 498-500, 520-522, 524-527 <i>Hands-on Lab</i> 488</p> <p>Teacher Wraparound Edition: A 527; B 483, 498; DI 499; I-CE 499</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 674, 679</p>
<p>Standard 6-The students demonstrate understanding of and an ability to use data analysis, probability, and statistics.</p> <hr/> <p><i>With society's expanding use of data for prediction and decision making, it is important that students develop an understanding of the concepts and processes used in analyzing data.</i></p>	
<p>1. Systematically collect, organize, and describe data.</p>	<p>Student Edition: 54-57, 60-63</p> <p>Teacher Wraparound Edition: A 63; B 54, 60; I-CE 55, 61</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 72 <i>Practice: Skills</i> 73 <i>Practice: Word Problems</i> 74</p>
<p>2. Construct, read, and interpret tables, charts, and graphs.</p>	<p>Student Edition: 54-57, 60-63, 76-79, 85-89, 92-95, 203 Ex 1, 205 #2, 418-421 <i>Problem-Solving Strategy</i> 58-59</p> <p>Teacher Wraparound Edition: A 57, 79, 421; B 76, 203, 418; DI 77; I-CE 61, 77, 419-420</p>

STANDARDS	PAGE REFERENCES
<p>3. Draw inferences, construct, and evaluate arguments based on data analysis and measures of central tendency.</p>	<p>Student Edition: 69-72, 79 #26-27, 83 #19, 95 #19 <i>Hands-on Lab</i> 73 <i>Mid-Chapter Practice Test</i> 74 #9-13 <i>The Game Zone</i> 75 <i>Study Guide and Review</i> 97 #16-19 <i>Practice Test</i> 99 #7-8 <i>Standardized Test Practice</i> 100 #6, 101 #12 <i>Extra Practice</i> 568</p> <p>Teacher Wraparound Edition: A 72; B 69; DI 69; I-CE 70</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 82 <i>Practice: Skills</i> 83 <i>Practice: Word Problems</i> 84</p>
<p>4. Construct sample spaces and determine the theoretical and experimental probabilities of events.</p>	<p>Student Edition: 370-373, 393-395, 398-401 <i>Study Guide and Review</i> 402 #11-15, 404 #36-43 <i>Practice Test</i> 405 #3-5</p> <p>Teacher Wraparound Edition: A 395; B 393; DI 371; I-CE 371, 394</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 485 <i>Practice: Skills</i> 381, 486 <i>Practice: Word Problems</i> 487</p>
<p>5. Make predictions based on experimental results or probabilities.</p>	<p>Student Edition: 393-395, 401 #27 <i>Hands-on Lab</i> 397 <i>Study Guide and Review</i> 404 #36-39 <i>Practice Test</i> 405 #14</p> <p>Teacher Wraparound Edition: I-CE 394</p> <p>Teacher Resources: <i>Study Guide and Intervention</i> 510 <i>Practice: Skills</i> 511 <i>Practice: Word Problems</i> 512</p>

STANDARDS	PAGE REFERENCES
<p>Standard 7-Students demonstrate understanding of and an ability to use patterns, relations and functions.</p>	
<p><i>One of the central themes of mathematics is the study of patterns, relations, and functions. Exploring patterns helps students develop mathematical power and instills in them an appreciation for the beauty of mathematics.</i></p>	
<p>1. Describe, extend, analyze, and create a variety of patterns and functions.</p>	<p>Student Edition: 34-36, 41 #47-50, 45 #50, 150-152, 177-181 <i>Hands-on Lab</i> 37 <i>Study Guide and Review</i> 48 #44-47 <i>Problem-Solving Strategy</i> 132 Teacher Wraparound Edition: A 36, 133; B 34, 132; DI 35, 133; I-CE 35</p>
<p>2. Describe and represent relationships with tables, graphs, and rules.</p>	<p>Student Edition: 34-36, 177-181 <i>Hands-on Lab</i> 37, 176 Teacher Wraparound Edition: A 36; B 34; I-CE 178-179 Teacher Resources: <i>Study Guide and Intervention</i> 31, 210 <i>Practice: Skills</i> 32, 211 <i>Practice: Word Problems</i> 33, 212</p>
<p>3. Analyze functional relationships to explain how a change in one quantity results in a change in another.</p>	<p>Student Edition: 177-181, 182-185 <i>Hands-on Lab</i> 176 Teacher Wraparound Edition: A 181 Teacher Resources: <i>Study Guide and Intervention</i> 210, 215 <i>Practice: Skills</i> 211, 216 <i>Practice: Word Problems</i> 212, 217</p>
<p>4. Use patterns and functions to represent and solve problems.</p>	<p>Student Edition: 177-181, 185 #33-35 <i>Hands-on Lab</i> 176 <i>Study Guide and Review</i> 188 #54-62 <i>Standardized Test Practice</i> 190 #9, 191 #20 Teacher Wraparound Edition: A 181; I-CE 178-179</p>

STANDARDS	PAGE REFERENCES
5. Describe functions using graphical, numerical, physical, algebraic, and verbal models or representations.	Student Edition: 150-152, 159 #42, 163 #48-51, 177-181 <i>Mid-Chapter Practice Test</i> 170 #4-5 <i>Hands-on Lab</i> 176 <i>Study Guide and Review</i> 186 <i>Practice Test</i> 189 #3-4 <i>Extra Practice</i> 572 Teacher Wraparound Edition: A 181; I-CE 151