



Pre-Algebra

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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: 6-10, 16 #51, 113 #43-#45, 121 Example 2, 247 #44, 301 #40, 358 #45, 472 Example 2, 531 #34, 638 #25 <i>Standardized Test Practice</i> 142-143 Teacher Wraparound Edition: A 130; DI 217; ICE 331, 534</p>
<p>2. Select and apply appropriate estimation strategies throughout the problem-solving process.</p>	<p>Student Edition: 8-10, 187 Example 3, 209 #70-#75, 220-221 Examples 1-4, 236 #38, 294-297, 437-439, 567 #31, 586 Example 3 <i>Study Tip</i> 121 <i>Practice Quiz 2</i> 308 #1-#2 <i>Test-Taking Tip</i> 564 Teacher Wraparound Edition: A 297; TT 187</p>

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3. Interpret and communicate mathematical ideas and logical arguments using correct mathematical terms and notations.	<p>Student Edition: 14 #1, 16 #52, 136 #43, 207 #1, 357 #1, 407 #1, 570 #2 <i>Reading Mathematics</i> 339, 446</p> <p>Teacher Wraparound Edition: A 114, 248; DI 182; SN 112, 608; TT 116</p>
4. Recognize and investigate the relevance and usefulness of mathematics through applications, both in and out of school.	<p>Student Edition: 119 #50, 276-280, 337 #37, 344 #46, 461 Example 3, 570 Example 3, 639 #28 <i>Standardized Test Practice</i> 197 #22 <i>Algebra Activity</i> 237 <i>WebQuest</i> 301, 543</p> <p>Teacher Wraparound Edition: DI 117, 341, 473; ICE 277</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>Student Edition: 437 Example 2, 439 #24-#31, 478 Example 2, 480 #21-#26, 534 Example 1 <i>WebQuest</i> 3 <i>Spreadsheet Investigation</i> 22, 303, 452 <i>Study Tip</i> 187 <i>Graphing Calculator Investigation</i> 45-46, 243, 402-403, 629</p> <p>Teacher Wraparound Edition: TT 331</p>
<p>Standard 2-Students demonstrate understanding of and an ability to use numbers and operations.</p> <hr/> <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>	
1. Use the four basic operations with whole numbers, fractions, decimals, and integers.	<p>Student Edition: 64-68, 70-74, 75-79, 80-84, 210-214, 215-219, 220-224, 232-236 <i>Algebra Activity</i> 62-63 <i>Standardized Test Practice</i> 94 #5</p> <p>Teacher Wraparound Edition: A 68; DI 73; ICE 81, 216</p>

STANDARDS	PAGE REFERENCES
2. Use mental mathematics and number sense in using order of operations, and order relations for whole numbers, fractions, decimals, and integers.	Student Edition: 12-16, 23-27, 56-60, 68 #53-#54, 154-155, 616 #30-#33 <i>Study Guide and Review</i> 48 <i>Practice Test</i> 51 #3-#5, #9-#11, #15-#16 <i>Standardized Test Practice</i> 53 #14 Teacher Wraparound Edition: ICE 13, 24, 154
3. Use the relationships and applications of ratio, proportion, percent, and scientific notation.	Student Edition: 186-190, 264-268, 270-274, 276-280, 288-292, 293-297, 298-302 <i>Reading Mathematics</i> 269 <i>Algebra Activity</i> 275, 286 <i>Spreadsheet Investigation</i> 303 Teacher Wraparound Edition: DI 187, 266; ICE 271
4. Develop and apply number theory concepts (e.g., primes, factors and multiples) in real-world and mathematical problem situations.	Student Edition: 148-152, 159-163, 164-168, 169-173, 226-230 <i>Standardized Test Practice</i> 196-197 #8-#9, #19 <i>Reading Mathematics</i> 225 <i>Algebra Activity</i> 231 Teacher Wraparound Edition: DI 150, 228; ICE 149, 165
<p>Standard 3-Students use algebraic concepts, processes, and language to model and solve a variety of real-world and mathematical problems.</p> <hr/> <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>	
1. Understand the concepts of variable, expression and equation.	Student Edition: 17-21, 28-32, 103-107 <i>Spreadsheet Investigation</i> 22 <i>Study Guide and Review</i> 48 <i>Practice Test</i> 51 #3-#16 Teacher Wraparound Edition: A 107; DI 18, 29, 105; ICE 18, 104

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2. Represent situations and number patterns using tables, graphs, verbal rules, equations, and models.	<p>Student Edition: 33-38, 40-44, 376-377, 381-385 <i>Reading Mathematics</i> 11 <i>Algebra Activity</i> 39 <i>Graphing Calculator Investigation</i> 45-46 <i>Study Guide and Review</i> 50 <i>Practice Test</i> 51 #17-#25 <i>Standardized Test Practice</i> 52 #9-#10, 53 #17-#18, 94 #2</p> <p>Teacher Wraparound Edition: ICE 35, 41; TTT 35</p>
3. Recognize and use the general properties of operations (e.g., the distributive property).	<p>Student Edition: 23-27, 98-102 <i>Practice Quiz 2</i> 32 #1-#2 <i>Study Guide and Review</i> 49, 138 <i>Practice Test</i> 51 #12 <i>Standardized Test Practice</i> 52 #5, 142 #3, #7</p> <p>Teacher Wraparound Edition: ICE 24, 99</p>
4. Solve linear equations using concrete, numerical and algebraic methods.	<p>Student Edition: 110-114, 115-119, 120-124, 126-130, 244-248, 330-333, 334-338, 375-379 <i>Standardized Test Practice</i> 52 #6 <i>Algebra Activity</i> 108-109</p> <p>Teacher Wraparound Edition: A 119; DI 113; ICE 245, 335; TT 121</p>
5. Investigate inequalities and nonlinear relationships informally.	<p>Student Edition: 340-344, 345-349, 350-354, 355-359, 376, 687-691, 692-696 <i>Standardized Test Practice</i> 551 #14 <i>Graphing Calculator Investigation</i> 697</p> <p>Teacher Wraparound Edition: A 354; DI 348, 352; ICE 356, 688</p>

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<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>	
<p>1. Identify, describe, construct, and compare plane and solid geometric figures.</p>	<p>Student Edition: 453-457, 513-517, 527-531, 556-561 <i>Algebra Activity</i> 498-499 <i>Reading Mathematics</i> 526 <i>Standardized Test Practice</i> 551 #18 <i>Geometry Activity</i> 554-555 Teacher Wraparound Edition: A 457, 517; DI 514, 558; ICE 514, 528, 557</p>
<p>2. Understand and apply geometric properties and relationships (e.g., the Pythagorean Theorem).</p>	<p>Student Edition: 460-464, 471-475, 477-481, 492-497, 500-504, 584-588 <i>Algebra Activity</i> 458-459, 476 <i>Standardized Test Practice</i> 550 #2, #6, #7, 551 #17 <i>Geometry Activity</i> 583 Teacher Wraparound Edition: A 464; DI 478; ICE 461; TTT 475</p>
<p>3. Represent geometric figures on a coordinate grid.</p>	<p>Student Edition: 88 #45-#48, 466-470, 506-511 <i>Algebra Activity</i> 512 <i>Study Guide and Review</i> 545-546 <i>Practice Test</i> 549 #10-#11 Teacher Wraparound Edition: ICE 507, 508, 509</p>
<p>4. Explore properties and transformations of geometric figures.</p>	<p>Student Edition: 453-457, 506-511 <i>Graphing Calculator Investigation</i> 482 <i>Standardized Test Practice</i> 488 #11, 489 #22, 550 #8, 551 #16, #20 <i>Algebra Activity</i> 505, 512, 532 Teacher Wraparound Edition: A 511; DI 454; ICE 507</p>

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5. Use geometry as a means of describing the physical world.	<p>Student Edition: 88 #49, 472-475, 479 Example 4, 480 #33-#36, 524 #24-#25, 560 #19-#21 <i>Graphing Calculator Investigation</i> 482 <i>Practice Test</i> 487 #16 <i>Standardized Test Practice</i> 489 #24, 551 #19, 600 #8, 601 #17, #21</p> <p>Teacher Wraparound Edition: DI 473, 508; ICE 473</p>
<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>	
1. Estimate, make, and use measurements to describe, compare, and/or contrast object in real-world situations.	<p>Student Edition: 218 #46-#47, 219 #50-#51, 274 #42, 474 #15-#16, 480 #33-#36, 524 #24-#25, 593 #39 <i>Standardized Test Practice</i> 489 #24, 551 #19, 600 #2</p> <p>Teacher Wraparound Edition: ICE 478 #4, 522 #4</p>
2. Select and use appropriate units and tools to measure to a level of accuracy required in a particular setting.	<p>Student Edition: 447-451, 590-594 <i>Reading Mathematics</i> 589 <i>Study Guide and Review</i> 598</p> <p>Teacher Wraparound Edition: A 136; DI 449; ICE 448</p>
3. Apply the concepts of perimeter, area, volume and capacity, weight and mass, angle measure, time, and temperature.	<p>Student Edition: 131-136, 447-451, 492-497, 520-525, 533-538, 539-543, 563-567, 568-572, 573-577, 578-582 <i>Spreadsheet Investigation</i> 137 <i>Standardized Test Practice</i> 142 #5, 143 #20, 488 #3</p>
4. Demonstrate understanding of the structure and use of systems of measurement, including English and metric.	<p>Student Edition: 118 #48, 168 #76-#81, 212, 213 #34-#37, 214 #49-#52, 217, 218 #46-#47, 219 #50-#51, 272, 566 #23-#25 <i>Standardized Test Practice</i> 261 #17 <i>Getting Started</i> 263 <i>Prerequisite Skills</i> 718-719, 720-721</p> <p>Teacher Wraparound Edition: ICE 272</p>

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5. Use the concepts of rates and other derived and indirect measurements.	<p>Student Edition: 393-397, 471-475 <i>Algebra Activity</i> 392 <i>Study Guide and Review</i> 486 <i>Practice Test</i> 487 #16 <i>Standardized Test Practice</i> 489 #14, #24, 600 #8</p> <p>Teacher Wraparound Edition: A 475, 481; DI 473; ICE 472</p>
6. Demonstrate relationships between formulas and procedures for determining area and volume.	<p>Student Edition: 563, 567 #30, 577 #24 <i>Geometry Activity</i> 562</p> <p>Teacher Wraparound Edition: DI 580</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>	
1. Systematically collect, organize, and describe data.	<p>Student Edition: 612-616, 617-621, 623-628 <i>Algebra Activity</i> 39, 253, 309, 386, 392, 656-657 <i>WebQuest</i> 43 <i>Graphing Calculator Investigation</i> 45-46, 622, 629 <i>Spreadsheet Investigation</i> 452</p>
2. Construct, read, and interpret tables, charts, and graphs.	<p>Student Edition: 40-44, 409-413, 606-611, 617-621, 623-628, 630-633 <i>Algebra Activity</i> 39 <i>WebQuest</i> 43 <i>Graphing Calculator Investigation</i> 45-46, 622, 629 <i>Spreadsheet Investigation</i> 452</p> <p>Teacher Wraparound Edition: ICE 41, 607, 631</p>
3. Draw inferences, construct, and evaluate arguments based on data analysis and measures of central tendency.	<p>Student Edition: 42, 43 #19, 44 #21, 238-242 <i>Algebra Activity</i> 39, 180, 237, 253, 275, 309, 392 <i>Standardized Test Practice</i> 261 #23 <i>Graphing Calculator Investigation</i> 622</p> <p>Teacher Wraparound Edition: A 44, 242; DI 632</p>

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<p>4. Construct sample spaces and determine the theoretical and experimental probabilities of events.</p>	<p>Student Edition: 310-314, 635-639, 650-655 <i>Graphing Calculator Investigation</i> 315 <i>Study Guide and Review</i> 320 <i>Algebra Activity</i> 640, 656-657 <i>Standardized Test Practice</i> 664 #10, 665 #21</p> <p>Teacher Wraparound Edition: ICE 311</p>
<p>5. Make predictions based on experimental results or probabilities.</p>	<p>Student Edition: 42, 43 #19, 310-314 <i>Study Guide and Review</i> 50 #36 <i>Algebra Activity</i> 275, 386 <i>Practice Test</i> 321 #30 <i>Spreadsheet Investigation</i> 452</p>
<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: 6-10, 102 #69-#71, 249-252, 369-373, 475 #20 <i>Algebra Activity</i> 253, 368 <i>Study Guide and Review</i> 258 <i>Standardized Test Practice</i> 260 #9-#10 <i>Graphing Calculator Investigation</i> 374 <i>Reading Mathematics</i> 380</p> <p>Teacher Wraparound Edition: A 252; DI 8; ICE 250</p>
<p>2. Describe and represent relationships with tables, graphs, and rules.</p>	<p>Student Edition: 35-38, 369-373, 537 #34, 687-691, 692-696 <i>Getting Started</i> 367 #1-#5 <i>Algebra Activity</i> 368 <i>Graphing Calculator Investigation</i> 374 <i>Reading Mathematics</i> 380 <i>Standardized Test Practice</i> 702 #9, 703 #20</p> <p>Teacher Wraparound Edition: DI 688, 695; ICE 35, 693</p>

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<p>3. Analyze functional relationships to explain how a change in one quantity results in a change in another.</p>	<p>Student Edition: 565 #2, 572 #26, 577 #23, 586 #2, 588 #25 <i>Graphing Calculator Investigation</i> 402-403, 697 <i>Geometry Activity</i> 583 #10, #12, #14 Teacher Wraparound Edition: DI 695</p>
<p>4. Use patterns and functions to represent and solve problems.</p>	<p>Student Edition: 6-10, 35 Example 4, 37 #28-#30, 251 #9, #28-#30, 376 Example 2, 693 Example 2, 695 #31-#33, 696 #39 <i>Spreadsheet Investigation</i> 137 #5 Teacher Wraparound Edition: DI 688; ICE 7 #1, 376</p>
<p>5. Describe functions using graphical, numerical, physical, algebraic, and verbal models or representations.</p>	<p>Student Edition: 375-379, 687-691, 692-696 <i>Graphing Calculator Investigation</i> 374, 402-403, 697 <i>Reading Mathematics</i> 380 <i>Study Guide and Review</i> 700 Teacher Wraparound Edition: DI 688, 695; ICE 688; TNT 691; TT 690</p>