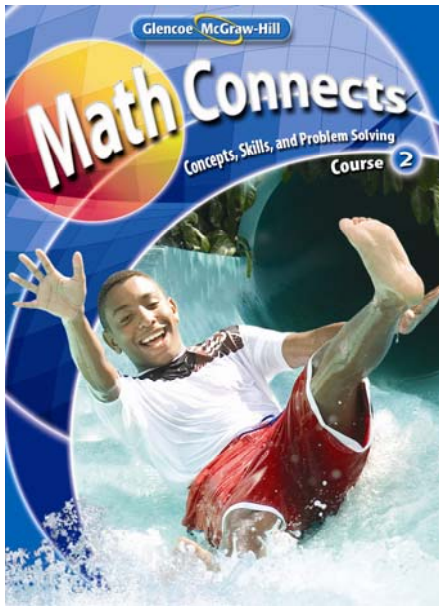




**Glencoe**

Academic Content Standards  
Grade Seven



# Math Connects

Concepts, Skills, and Problem Solving

Course 2

© 2009

## Student Edition Correlation

STANDARDS	PAGE REFERENCES
<b>Number, Number Sense and Operations Standard</b>	
<i>Number and Number Systems</i>	
1. Demonstrate an understanding of place value using powers of 10 and write large numbers in scientific notation.	<b>Student Edition:</b> 205 #54-#57, 206-210, LA2-LA5, 668, 669, 678, 720 #3, 737
2. Explain the meaning of exponents that are negative or 0.	<b>Student Edition:</b> LA2-LA5
3. Describe differences between rational and irrational numbers; e.g., use technology to show that some numbers (rational) can be expressed as terminating or repeating decimals and others (irrational) as non-terminating and non-repeating decimals.	<b>Student Edition:</b> 196-200, 215-220, 221, 223, 224, 225, 677 <i>Mid-Chapter Quiz</i> 201
<i>Meaning of Operations</i>	
4. Use order of operations and properties to simplify numerical expressions involving integers, fractions and decimals.	<b>Student Edition:</b> 38-41, 42-43, 44-47, 53-56, 72-73, 76-77, LA6-LA7, 669, 672 <i>Mid-Chapter Quiz</i> 48 <i>Study Guide and Review</i> 72-73 <i>Test Practice</i> 76-77

STANDARDS	PAGE REFERENCES
5. Explain the meaning and effect of adding, subtracting, multiplying and dividing integers; e.g., how adding two integers can result in a lesser value.	<b>Student Edition:</b> 95-99, 103-106, 107-111, 114-118, 672, 673, 705 #9-#11 <i>Algebra Lab</i> 93-94, 101-102 <i>Mid-Chapter Quiz</i> 100 <i>Practice Test</i> 123 <i>Study Guide and Review</i> 119, 121-122
<i>Computation and Estimation</i>	
6. Simplify numerical expressions involving integers and use integers to solve real-life problems.	<b>Student Edition:</b> 82-83, 86-87, 95-99, 103-105, 107-111, 112-113, 114-118, 124-125, 705 <i>Mid-Chapter Quiz</i> 100 <i>Practice Test</i> 123 <i>Study Guide and Review</i> 120-122
7. Solve problems using the appropriate form of a rational number (fraction, decimal or percent).	<b>Student Edition:</b> 194-195, 196-200, 202-205, 206-210, 215-219, 230-235, 236-241, 242-246, 248-249, 252-257 <i>Math Lab</i> 250-251 <i>Mid-Chapter Quiz</i> 201, 247 <i>Practice Test</i> 225 <i>Study Guide and Review</i> 223-224
8. Develop and analyze algorithms for computing with percents and integers, and demonstrate fluency in their use.	<b>Student Edition:</b> 344-348, 349, 350-354, 355-360, 361-365, 366-367, 369-374, 375-378, 379-382, 391, 685, 686, 687 <i>Math Lab</i> 342-343 <i>Mid-Chapter Quiz</i> 368 <i>Spreadsheet Lab</i> 383 <i>Study Guide and Review</i> 384-388
9. Represent and solve problem situations that can be modeled by and solved using concepts of absolute value, exponents and square roots (for perfect squares).	<b>Student Edition:</b> 30-33, 34-37, 80-83, 589-593, 619-623, 636-639, 640-645, 668, 701, 704 #11, 714 #5 <i>Mid-Chapter Quiz</i> 48 <i>Practice Test</i> 75 <i>Study Guide and Review</i> 71-72, 120

STANDARDS	PAGE REFERENCES
<b>Measurement Standard</b>	
<i>Measurement Units</i>	
1. Select appropriate units for measuring derived measurements; e.g., miles per hour, revolutions per minute.	<b>Student Edition:</b> 287-292, 293-297, 300, 310-315, 317, 682, 683, 704 #1, 729 #18
2. Convert units of area and volume within the same measurement system using proportional reasoning and a reference table when appropriate; e.g., square feet to square yards, cubic meters to cubic centimeters.	<b>Student Edition:</b> 654-655
<i>Use Measurement Techniques and Tools</i>	
3. Estimate a measurement to a greater degree of precision than the tool provides.	<b>Student Edition:</b> 575 #20-#21, 580, 591 #20-#22, 599 #20-#22, 655 #3-#6
4. Solve problems involving proportional relationships and scale factors; e.g., scale models that require unit conversions within the same measurement system.	<b>Student Edition:</b> 298-303, 304-309, 315, 320-326, 332, 337, 682-683, 684 <i>Math Lab</i> 317 <i>Spreadsheet Lab</i> 327 <i>Study Guide and Review</i> 335-336
5. Analyze problem situations involving measurement concepts, select appropriate strategies, and use an organized approach to solve narrative and increasingly complex problems.	<b>Student Edition:</b> 572-576, 578-582, 584-588, 589-593, 594-595, 596-599, 602, 613-618, 619-623, 631 <i>Geometry Lab</i> 607 <i>Measurement Lab</i> 577, 583, 600-601 <i>Study Guide and Review</i> 627-630
6. Use strategies to develop formulas for finding area of trapezoids and volume of cylinders and prisms.	<b>Student Edition:</b> 578-582, 603-606, 613-618, 619-623, 697, 699, 700, 701, 714, 748, 749 <i>Mid-Chapter Quiz</i> 602 <i>Practice Test</i> 631
7. Develop strategies to find the area of composite shapes using the areas of triangles, parallelograms, circles and sectors.	<b>Student Edition:</b> 589-593, 594-595, 596-599, 698, 699, 714 #7, 748, 749 <i>Mid-Chapter Quiz</i> 602 <i>Practice Test</i> 631 <i>Study Guide and Review</i> 628, 630

STANDARDS	PAGE REFERENCES
8. Understand the difference between surface area and volume and demonstrate that two objects may have the same surface area, but different volumes or may have the same volume, but different surface areas.	<b>Student Edition:</b> 613-618, 619-623, 649-653, 654-655, 656-659, 663, 748, 749 <i>Practice Test</i> 631
9. Describe what happens to the surface area and volume of a three- dimensional object when the measurements of the object are changed; e.g., length of sides are doubled.	<b>Student Edition:</b> 618 #27, 622 #29, 654-655, 658 #17, 658 #19 <i>Graphing Calculator Lab</i> 624-625
<b>Geometry and Spatial Sense Standard</b>	
<i>Characteristics and Properties</i>	
1. Use proportional reasoning to describe and express relationships between parts and attributes of similar and congruent figures.	<b>Student Edition:</b> 525-527, 530, 534, 539, 540-545, 546-551, 552, 554, 557 #28, 563, 565, 567, 695, 724 #10 <i>Mid-Chapter Quiz</i> 539 <i>Practice Test</i> 567 <i>Study Guide and Review</i> 563, 565
2. Determine sufficient (not necessarily minimal) properties that define a specific two-dimensional figure or three-dimensional object. For example: a. Determine when one set of figures is a subset of another; e.g., all squares are rectangles. b. Develop a set of properties that eliminates all but the desired figure; e.g., only squares are quadrilaterals with all sides congruent and all angles congruent.	<b>Student Edition:</b> 533-538, 551 #37, 565, 567 #14, 578-582, 603-606, 608-612, 694 <i>Measurement Lab</i> 577 <i>Mid-Chapter Quiz</i> 539
3. Use and demonstrate understanding of the properties of triangles. For example: a. Use Pythagorean Theorem to solve problems involving right triangles. b. Use triangle angle sum relationships to solve problems.	<b>Student Edition:</b> 524-529, 530, 531 #3, 538 #50-#52, 564 #12-#13, 569 #10, 640-645, 648 #12-#13, LA18-LA20, 694, 702 <i>Mid-Chapter Quiz</i> 539 <i>Practice Test</i> 567 #7-#8
4. Determine necessary conditions for congruence of triangles.	<b>Student Edition:</b> 554, 555, 556, LA14-LA17

STANDARDS	PAGE REFERENCES
5. Apply properties of congruent or similar triangles to solve problems involving missing lengths and angle measures.	<b>Student Edition:</b> 540-545, 557 #28, 582 #24, LA14-LA17, 695 <i>Study Guide and Review</i> 565 #19-#21
<i>Spatial Relationships</i>	
6. Determine and use scale factors for similar figures to solve problems using proportional reasoning.	<b>Student Edition:</b> 540-545, 551 #36, LA17, 695, 724 #10 <i>Practice Test</i> 567 #10 <i>Study Guide and Review</i> 565 #19-#21
<i>Transformations and Symmetry</i>	
7. Identify the line and rotation symmetries of two-dimensional figures to solve problems.	<b>Student Edition:</b> 558-562, 696 <i>Practice Test</i> 567 #16 <i>Study Guide and Review</i> 566
8. Perform translations, reflections, rotations and dilations of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper).	<b>Student Edition:</b> 553-557, 558-562, 566, 576 #31-#33, 696, 724 #11, 729 #13, 743, 744
<i>Visualization and Geometric Models</i>	
9. Draw representations of three-dimensional geometric objects from different views.	<b>Student Edition:</b> 608-612, 618 #31, 623 #38-#39, 629, 700, 714 #9, 746 <i>Geometry Lab</i> 607 <i>Measurement Lab</i> 600-601
<b>Patterns, Functions and Algebra Standard</b>	
<i>Use Patterns, Relations and Functions</i>	
1. Represent and analyze patterns, rules and functions with words, tables, graphs and simple variable expressions.	<b>Student Edition:</b> 28 #8, 44, 57-61, 63-67, 74, 83 #41-#43, 112, 113 #4-#6, 118 #47, 263 #66, 670, 671 <i>Algebra Lab</i> 62 <i>Graphing Calculator Lab</i> 68-69 <i>Study Guide and Review</i> 75
2. Generalize patterns by describing in words how to find the next term.	<b>Student Edition:</b> 44, 57-61, 63, 67 #31, 112, 113 #4-#6, 670 <i>Algebra Lab</i> 62 <i>Practice Test</i> 75 #21-#22 <i>Study Guide and Review</i> 74

STANDARDS	PAGE REFERENCES
3. Recognize and explain when numerical patterns are linear or nonlinear progressions; e.g., 1, 3, 5, 7... is linear and 1, 3, 4, 8, 16... is nonlinear.	<b>Student Edition:</b> 57-61, 67 #31, 670 <i>Algebra Lab</i> 62 <i>Practice Test</i> 75 #21-#22 <i>Study Guide and Review</i> 74
<i>Use Algebraic Representations</i>	
4. Create visual representations of equation-solving processes that model the use of inverse operations.	<b>Student Edition:</b> 136-141, 142-146, 148-149, 151-155, LA6-LA9, 674, 675, 706 #5 <i>Algebra Lab</i> 134-135 <i>Practice Test</i> 173 <i>Study Guide and Review</i> 170, 171
5. Represent linear equations by plotting points in the coordinate plane.	<b>Student Edition:</b> 163-167, 172, 173 #21-#25, 184 #50, 189 #43-#45, 676, 706 #12-#16 <i>Graphing Calculator Lab</i> 68-69, 168
6. Represent inequalities on a number line or a coordinate plane.	<b>Student Edition:</b> 215-220, 235 #51-#54, 679, 740-741 <i>Practice Test</i> 225 #22-#24 <i>Study Guide and Review</i> 224
7. Justify that two forms of an algebraic expression are equivalent, and recognize when an expression is simplified; e.g., $4m = m + m + m + m$ or $a \cdot 5 + 4 = 5a + 4$ .	<b>Student Edition:</b> 44-47, 49-52, 53-56, 61 #39-#40, 67 #32-#35, 669, 670 <i>Mid-Chapter Quiz</i> 48 <i>Study Guide and Review</i> 73
8. Use formulas in problem-solving situations.	<b>Student Edition:</b> 44-47, 144, 146 #39, 154 #30-#32, 156-161, 165, 572-576, 578-582, 584-588, 589-593, 613-618, 619-623, 705 #14
9. Recognize a variety of uses for variables; e.g., placeholder for an unknown quantity in an equation, generalization for a pattern, formula.	<b>Student Edition:</b> 44-47, 49-52, 57-61, 63-67, 136-141, 142-146, 669, 670, 671, 702, 740-741 <i>Mid-Chapter Quiz</i> 48 <i>Study Guide and Review</i> 73, 74
<i>Analyze Change</i>	
10. Analyze linear and simple nonlinear relationships to explain how a change in one variable results in the change of another.	<b>Student Edition:</b> 63-67, 74, 75 #24-#25, 163-167, 671, 724 #8 <i>Graphing Calculator Lab</i> 68-69

STANDARDS	PAGE REFERENCES
11. Use graphing calculators or computers to analyze change; e.g., distance-time relationships.	<b>Student Edition:</b> <i>Graphing Calculator Lab</i> 68-69, 168, 624-625 <i>Spreadsheet Lab</i> 327
<b>Data Analysis and Probability Standard</b>	
<i>Data Collection</i>	
1. Read, create and interpret box-and-whisker plots, stem-and-leaf plots, and other types of graphs, when appropriate.	<b>Student Edition:</b> 14-15, 396-401, 402-408, 410-414, 415-421, 424-425, 426-431, 455, 687, 688, 729 #19 <i>Mid-Chapter Quiz</i> 423 <i>Practice Test</i> 455 <i>Spreadsheet Lab</i> 422, 432-433
2. Analyze how decisions about graphing affect the graphical representation; e.g., scale, size of classes in a histogram, number of categories in a circle graph.	<b>Student Edition:</b> 408 #36, 415-421, 423, 424-425, 430 #18-#19, 434-437, 455, 688 <i>Spreadsheet Lab</i> 422
<i>Statistical Methods</i>	
3. Analyze a set of data by using and comparing combinations of measures of center (mean, mode, median) and measures of spread (range, quartile, interquartile range), and describe how the inclusion or exclusion of outliers affects those measures.	<b>Student Edition:</b> 117 #39, 395-400, 402-408, 410-414, 421 #33-#34, 431 #26-#27, 687, 725 #18-#21 <i>Graphing Calculator Lab</i> 409 <i>Mid-Chapter Quiz</i> 423 <i>Study Guide and Review</i> 451
4. Construct opposing arguments based on analysis of the same data, using different graphical representations.	<b>Student Edition:</b> 440-449, 690
5. Compare data from two or more samples to determine how sample selection can influence results.	<b>Student Edition:</b> 438-443, 449 #16-#17, 454, 455, 690, 711 #11
6. Identify misuses of statistical data in articles, advertisements, and other media.	<b>Student Edition:</b> 444-449, 454, 455, 470 #35, #36, 690, 711 #12
<i>Probability</i>	
7. Compute probabilities of compound events; e.g., multiple coin tosses or multiple rolls of number cubes, using such methods as organized lists, tree diagrams and area models.	<b>Student Edition:</b> 460-464, 465-470, 479, 480-483, 484-485, 486-490, 492-497, 513 #23-#26, 690, 693, 712, 725 #22-#23 <i>Practice Test</i> 503 <i>Study Guide and Review</i> 499-502

STANDARDS	PAGE REFERENCES
<p>8. Make predictions based on theoretical probabilities, design and conduct an experiment to test the predictions, compare actual results to predicted results, and explain differences.</p>	<p><b>Student Edition:</b>  486-490, 491, 692, 711 #8-#9, 729 #22  <i>Practice Test</i> 503 #15  <i>Study Guide and Review</i> 502</p>