

GLENCOE CORRELATION
MATHEMATICS: APPLICATIONS AND CONCEPTS COURSE 1
MINNESOTA
Mathematics Academic Standards
Grade Six

CONTENT STANDARDS	PAGE REFERENCES
I. MATHEMATICAL REASONING <u>Standard:</u> Apply skills of mathematical representation, communication and reasoning throughout the remaining four content strands. The student will:	
1. Assess the reasonableness of a solution by comparing the solution to appropriate graphical or numerical estimates or by recognizing the feasibility of a solution in a given context.	SE: 6-9, 37 #44, 47 #25, 86-89, 95 #14 <i>Problem-Solving Strategy</i> 54-55, 125-126, 156-157 <i>Hands-on Mini Lab</i> 62 <i>Spreadsheet Investigation</i> 60-61 <i>WebQuest</i> 3, 97 <i>Hands-on Lab</i> 407-408, 480-481 TWE: A 258 ICE 87, 88 <i>Study Guide and Intervention</i> 1 <i>Practice Skills</i> 2 <i>Practice: Word Problems</i> 3, 33
2. Appropriately use examples and counterexamples to make and test conjectures, justify solutions and explain results.	SE: 16 #47, 111, 135, 180 #31 <i>Problem-Solving Strategy</i> 32-33 <i>Hands-on Lab</i> 100-101, 139-140, 260-261, 464, 524 #18 <i>Hands-on Mini Lab</i> 144 <i>Spreadsheet Investigation</i> 469 TWE: DI 207
3. Translate a problem described verbally or by tables, diagrams or graphs, into suitable mathematical language, solve the problem mathematically and interpret the result in the original context.	SE: 6-9, 21 #40-#41, 27 #36, #37, 66-69, 86-89 <i>Problem-Solving Strategy</i> 54-55 <i>Spreadsheet Investigation</i> 60-61, 79 <i>WebQuest</i> 3, 97 TWE: DI 29 ICE 87, 88 <i>Practice Skills</i> 77 <i>Practice: Word Problems</i> 78
4. Support mathematical results by explaining why the steps in a solution are valid and why a particular solution method is appropriate.	SE: 6-9, 24-27, 124 #38-#39, 221 #31-#35, 497 #37 <i>WebQuest</i> 3, 97, 173 <i>Problem-Solving Strategy</i> 156-157, 280-281 TWE: A 9 DI 142 <i>Study Guide and Intervention</i> 21 <i>Practice Skills</i> 22 <i>Practice: Word Problems</i> 23

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5. Determine whether or not relevant information is missing from a problem.	SE: 6-9, 86-89, 95 #14 <i>Problem-Solving Strategy</i> 54-55, 192-193 <i>WebQuest</i> 3, 97 <i>Hands-on Lab</i> 437 TWE: ICE 87, 88 <i>Study Guide and Intervention</i> 561 <i>Practice Skills</i> 562 <i>Practice: Word Problems</i> 563
6. Use accurately common logical words and phrases such as “and,” “or,” “if ... then ...,” “unique,” “only if.”	SE: 241 ex 3 <i>Problem-Solving Strategy</i> 32-33, 314-315 <i>Study Tip</i> 7 <i>Hands-on Lab</i> 100-101, 139-140, 181
II. NUMBER SENSE, COMPUTATION AND OPERATIONS	
A. Number Sense	
<u>Standard:</u> Use positive and negative rational numbers, represented in a variety of ways, to quantify information and to solve real-world and mathematical problems.	
The student will:	
1. Order and compare integers, fractions, decimals and mixed numbers with $>$, $<$, and $=$. Locate and compare positive and negative rational numbers on a number line.	SE: 108-110, 127, 198-201, 209 #34-#37, 294-298, 588 TWE: A 205 B 108 DI 153, 199 ICE 199 <i>Study Guide and Intervention</i> 128, 241, 383 <i>Practice Skills</i> 242, 384 <i>Practice: Word Problems</i> 130, 243, 385
2. Use rounding and estimation with integers, decimals and fractions to solve real-world and mathematical problems.	SE: 111-113, 116-119, 219-222, 223-225, 256-258, 592-593 <i>Hands-on Lab</i> 218 <i>Problem-Solving Strategy</i> 125-126 <i>Reading Math</i> 207 TWE: A 119 B 111, 141 DI 117, 220, 223 ICE 220, 224, 257 <i>Study Guide and Intervention</i> 133, 251, 277, 282 <i>Practice Skills</i> 134, 252, 278, 283 <i>Practice: Word Problems</i> 135, 253, 279
B. Computation and Operation	
<u>Standard:</u> Compute fluently and make reasonable estimates with positive and negative rational numbers in real-world and mathematical problems. Understand the meanings of arithmetic operations and factorization, and how they relate to one another. Appropriately use calculators and other technologies to solve problems.	
The student will:	
1. Determine the prime factorization of positive integers.	SE: 14-17, 22 #10-#11, 27 #42-#45, 45 #10-#12, 209 #43 <i>Hands-on Mini Lab</i> 18 TWE: ICE 15 <i>Study Guide and Intervention</i> 11 <i>Practice Skills</i> 12 <i>Practice: Word Problems</i> 13

CONTENT STANDARDS	PAGE REFERENCES
2. Determine the least common multiple and the greatest common divisor of whole numbers.	SE: 177-180, 190 #2-#5, 194-197, 213 #8-#11 TWE: A 201 DI 178, 195 ICE 178, 195 TNT 178, 195 <i>Study Guide and Intervention</i> 221, 236 <i>Practice Skills</i> 222, 237 <i>Practice: Word Problems</i> 223, 238
3. Use addition, subtraction, multiplication and division of multi-digit whole and decimal numbers to solve multi-step real-world and mathematical problems.	SE: 121-124, 130 #7, 131 #17, 132, 138 #43-#45, 142 ex 4 <i>WebQuest</i> 3, 97 TWE: DI 122 ICE 122 <i>Practice: Word Problems</i> 145, 171, 181
4. Multiply and divide, without a calculator, numbers containing up to three digits by numbers containing up to two digits, such as $347 \div 83$ or 4.91×9.2 .	SE: 135-138, 141-143, 144-147, 148, 152-155, 167 <i>Hands-on Lab</i> 150-151 <i>WebQuest</i> 97 TWE: DI 136 ICE 142, 145, 153 <i>Study Guide and Intervention</i> 169, 174, 179, 184 <i>Practice Skills</i> 170, 175, 180, 185
5. Find quotients with remainders and be able to express the remainder in various ways depending on the context of the problem.	SE: 145 ex 3, 146 #12-#23, 206 ex 1, 207 ex 3, 274-275, 278, 591 TWE: ICE 207 TNT 277 <i>Study Guide and Intervention</i> 342, 347 <i>Practice Skills</i> 343, 348 <i>Practice: Word Problems</i> 344
6. Use the relationship between moving the decimal point and the operations of multiplication or division by powers of ten to simplify calculations.	SE: 136 ex 5, 404-407, 409-412 <i>Study Tip</i> 404, 405 TWE: T 407 <i>Study Guide and Intervention</i> 516 <i>Practice Skills</i> 517 <i>Practice: Word Problems</i> 518
7. Add, subtract, multiply and divide common fractions and mixed numbers as well as fractions where the common denominator equals one of the denominators.	SE: 228-231, 235-238, 240-243, 261-264, 265-267, 272-275, 276 <i>The Game Zone</i> 233, 269 TWE: DI 229, 266 ICE 195, 273 <i>Study Guide and Intervention</i> 236, 287, 292, 297, 332, 337 <i>Practice Skills</i> 237, 288, 293, 298, 333, 338 <i>Practice: Word Problems</i> 289, 294, 299, 334, 339
8. Find, represent and use percentages in real-world and mathematical problems, including percentages greater than 100% and less than 1%.	SE: 404-406, 409-412 TWE: DI 404 ICE 405 TNT 410 <i>Study Guide and Intervention</i> 516, 521 <i>Practice Skills</i> 517, 522 <i>Practice: Word Problems</i> 518, 523

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9. Apply the correct order of operations and grouping symbols when using calculators and other technologies.	SE: 24-27 <i>Hands-on Mini Lab</i> 333 <i>WebQuest</i> 3, 97 <i>Calculator and Spreadsheet Masters</i> 14
10. Know, use and translate calculator notational conventions to mathematical notation.	SE: <i>Study Tip</i> 19 <i>WebQuest</i> 3, 97 TWE: DI 136 <i>Calculator and Spreadsheet Masters</i> 13
11. Understand that use of a calculator requires appropriate mathematical reasoning and does not replace the need for mental computation.	SE: 206 ex 1, 207 ex 2, 3 <i>Hands-on Lab</i> 134 <i>Hands-on Mini Lab</i> 152 <i>Problem-Solving Strategy</i> 125-126 <i>WebQuest</i> 3, 97 TWE: DI 136
III. PATTERNS, FUNCTIONS AND ALGEBRA	
A. Patterns and Functions	
<u>Standard:</u> Demonstrate understanding of the rectangular coordinate system.	
The student will:	
1. Demonstrate understanding of the four quadrants in a rectangular coordinate system by writing and plotting ordered pairs.	SE: 320-323, 327 #21, #24, 328 #10, 329 #20, 375 #16 TWE: A 323 ICE 322 <i>Study Guide and Intervention</i> 408 <i>Practice Skills</i> 409 <i>Practice: Word Problems</i> 410
B. Algebra (Algebraic Thinking)	
<u>Standard:</u> Apply arithmetic operations in the correct order to simplify and evaluate numeric expressions in real-world and mathematical problems.	
The student will:	
1. Apply the correct order of operations including addition, subtraction, multiplication, division and grouping symbols to simplify and evaluate numeric expressions.	SE: 24-27, 29 ex 3 and 4, 30 #20-#45, 44, 45, 46 #8, #9, 47 #19 TWE: A 27 DI 25 ICE 25, 29 <i>Study Guide and Intervention</i> 21 <i>Practice Skills</i> 22 <i>Practice: Word Problems</i> 23

CONTENT STANDARDS	PAGE REFERENCES
IV. DATA ANALYSIS, STATISTICS AND PROBABILITY	
A. Data and Statistics	
<u>Standard:</u> Represent data and use various measures associated with data to draw conclusions and identify trends.	
The student will:	
1. Collect, organize and represent categorical and numerical data with tables and bar graphs.	SE: 50-53, 56-59, 90 <i>Problem-Solving Strategy</i> 54-55 <i>Spreadsheet Investigation</i> 60-61 TWE: A 53 DI 54, 57 ICE 51 <i>Study Guide and Intervention</i> 61, 66 <i>Practice Skills</i> 62, 67 <i>Practice: Word Problems</i> 63, 68
2. Understand the differences and appropriate use of mean, median and mode.	SE: 76-78, 80-83, 89 #15-#18, 92, 95 #12 <i>Spreadsheet Investigation</i> 79, 84-85 <i>Problem-Solving Strategy</i> 521 TWE: DI 76 ICE 77, 81 TNT 80 <i>Study Guide and Intervention</i> 86, 91 <i>Practice Skills</i> 87, 92 <i>Practice: Word Problems</i> 88, 93
3. Find the median and possible outliers.	SE: 77, 80-83, 93 #5-#6, 95 #13 <i>Problem-Solving Strategy</i> 521 TWE: ICE 77 <i>Study Guide and Intervention</i> 91 <i>Practice Skills</i> 87, 92 <i>Practice: Word Problems</i> 88, 93
B. Probability	
<u>Standard:</u> Calculate and express probabilities numerically, and apply probability concepts to solve real-world and mathematical problems.	
The student will:	
1. Generate and display data in graphs and tables to estimate experimental probabilities.	SE: 457 #8-#9 <i>Hands-on Mini Lab</i> 438 <i>Problem-Solving Strategy</i> 448-449 <i>Hands-on Lab</i> 432 TWE: DI 448 ICE 448
2. Represent all possible outcomes for a probability problem with tables, grids and tree diagrams to calculate probabilities and draw conclusions from the results.	SE: 433-436, 442 #7, 459 <i>Hands-on Lab</i> 432 <i>Problem-Solving Strategy</i> 448-449 TWE: DI 433 ICE 448 PS 457 <i>Study Guide and Intervention</i> 556 <i>Practice Skills</i> 557 <i>Practice: Word Problems</i> 558

CONTENT STANDARDS	PAGE REFERENCES
V. SPATIAL SENSE, GEOMETRY AND MEASUREMENT	
A. Spatial Sense	
<u>Standard:</u> Recognize the relationship between different representations of two- and three-dimensional shapes. Understand the effect of various transformations.	
The student will:	
1. Create models of three-dimensional geometric shapes from two-dimensional representations.	SE: 544, 575-576 <i>Hands-on Lab 574</i> <i>Problem-Solving Strategy 568-569</i> TWE: A 565, 574 PS 581 T 574 TNT 576
2. Predict the position and orientation of simple geometric shapes under transformations such as reflections, rotations and translations.	SE: <i>Hands-on Lab 532-533, 537</i> TWE: A 533 T 537
3. Identify symmetries in three-dimensional shapes.	The following examples could be used to meet this objective. SE: 544 TWE: PS 581
B. Geometry	
<u>Standard:</u> Identify a variety of simple geometric figures by name, calculate various quantities associated with them and use appropriate tools to draw them.	
The student will:	
1. Use facts about angles including the relationship between complementary angles, supplementary angles and the angles within triangles to solve real-world and mathematical problems.	SE: 504, 507, 512, 544 TWE: B 510 DI 507, 510 PS 541, 581 <i>Study Guide and Intervention 509</i> <i>Practice: Word Problems 656</i>
2. Classify triangles as equilateral, isosceles or scalene, and right, acute or obtuse.	SE: 504, 523, 524, 544 <i>Hands-on Lab 526-527</i> TWE: A 527 B 522 <i>Practice Skills 665</i>
3. Find the area and circumference of a circle given the radius or diameter using common approximations of pi where appropriate.	SE: 161-164, 556-559, 562 #8-#10, 566 #18-#20, 580 #10-#12, 581 #5 TWE: A 164, 559 B 161 DI 162, 557 ICE 557 TNT 162 <i>Study Guide and Intervention 709</i> <i>Practice Skills 710</i> <i>Practice: Word Problems 711</i>

CONTENT STANDARDS	PAGE REFERENCES
4. Measure, identify, and draw perpendicular and parallel lines, angles and rectangles by using appropriate tools such as straightedge, ruler, compass, protractor or software.	SE: 507, 509 #31-#34, 511 #6-#7, 525 #26, 539 #11-#14, 541 #7-#9 <i>Hands-on Lab</i> 513-514, 526-527 TWE: A 509 AC 533 DI 40, 510 ICE 507 TNT 507 <i>Calculator and Spreadsheet Masters</i> 44
C. Measurement <u>Standard:</u> Make calculations of time, length, area and volume within standard measuring systems, using good judgment in choice of units. The student will:	
1. Solve problems requiring conversion of units within the U.S. customary system, and within the metric system.	SE: 465-468, 470-473, 490-493 TWE: A 493 B 465 DI 491 ICE 491 <i>Study Guide and Intervention</i> 599, 609, 619 <i>Practice Skills</i> 600, 610, 620 <i>Practice: Word Problems</i> 601, 611, 621
2. Express measures of time and distance as fractions, mixed numbers and decimals to solve real-world and mathematical problems.	SE: 131 #15, 189 #49-#50, 243 #36, 277 ex 3 and 4, 278 #35-#36, 392 ex 2, 412 #38-#40, 497 #36-#38 <i>Practice: Word Problems</i> 233, 523
3. Find the area and perimeter of rectangles, squares, triangles and parallelograms by measuring, using a grid or using a formula.	SE: 39-41, 158-160, 546-549, 551-554 <i>Hands-on Lab</i> 464, 550 <i>Spreadsheet Investigation</i> 469 TWE: B 158 DI 552 ICE 159, 547, 552 <i>Study Guide and Intervention</i> 36, 189, 699, 704 <i>Practice Skills</i> 37, 190, 700, 705 <i>Practice: Word Problems</i> 38, 191, 701, 706

Codes Used for TWE Pages

A	Assess
AC	Activity
B	Bellringer
DI	Daily Intervention
ICE	In-Class Examples
PS	Portfolio Suggestion
T	Teach
TNT	Tips for New Teachers