

GLENCOE CORRELATION
PRE-ALGEBRA
COLORADO
Content Standards Mathematics Grades 5-8

OBJECTIVES	PAGE REFERENCES
STANDARD 1: Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> construct and interpret number meanings through real-world experiences* and the use of hands-on materials; 	SE: 12-13, 205-209, 441-445 <i>Foldables Study Organizer 55</i> TWE: DI 207, 352, 442 IE 351
<ul style="list-style-type: none"> represent and use numbers in a variety of equivalent forms (<i>for example, fractions, decimals, percents, exponents*, scientific notation*</i>); 	SE: 200-204, 206, 281-285, 442 TWE: SC 206
<ul style="list-style-type: none"> know the structure and properties of the real number system* (<i>for example, primes*, factors, multiples, relationships among sets of numbers</i>); and 	SE: 148-152, 159-163, 164-168, 441-445 <i>Study Guide and Review 484</i> TWE: OA 445 SN 443
<ul style="list-style-type: none"> use number sense, including estimation and mental arithmetic, to determine the reasonableness of solutions. 	SE: 6-8, 71, 121, 127, 187, 473, 534, 586 TWE: OA 10
GRADES 5-8 As students in grades 5-8 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> demonstrating meanings for integers, rational numbers, percents, exponents, square roots, and pi (π) using physical materials and technology in problem-solving situations; 	SE: 56-57, 175, 177, 281, 437, 441 <i>Algebra Activity 286-287</i> TWE: DI 59 TT 285
<ul style="list-style-type: none"> reading, writing, and ordering integers, rational numbers, and common irrational numbers such as $\sqrt{2}$, $\sqrt{5}$, and π; 	SE: 59, 68, 206-207, 441-442, 535, 616 <i>Extra Practice 726</i> TWE: IE 442
<ul style="list-style-type: none"> applying number theory concepts (<i>for example, primes, factors, multiples</i>) to represent numbers in various ways; 	SE: 148-152, 159-163, 164-168, 441-445 <i>Study Guide and Review 484</i> TWE: OA 445 SN 443
<ul style="list-style-type: none"> using the relationships among fractions, decimals, and percents, including the concepts of ratio and proportion, in problem-solving situations; 	SE: 200-204, 206, 281-285, 442 TWE: IE 282, 283 SC 206
<ul style="list-style-type: none"> developing, testing, and explaining conjectures about properties of integers and rational numbers; and 	SE: 25, 175, 204, 445 <i>Algebra Activity 368, 392, 512, 640</i> <i>Spreadsheet Investigation 137</i> TWE: DI 25

OBJECTIVES	PAGE REFERENCES
<ul style="list-style-type: none"> using number sense to estimate and justify the reasonableness of solutions to problems involving integers, rational numbers, and common irrational numbers such as $\sqrt{2}$, $\sqrt{5}$, and π. 	SE: 6-8, 71, 121, 127, 187, 473, 534, 586 TWE: OA 10
STANDARD 2 Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> identify, describe, analyze, extend, and create a wide variety of patterns in numbers, shapes, and data; 	SE: 7-9, 16, 74, 84, 102, 167 <i>Getting Started</i> 55 <i>Study Guide and Review</i> 47-48 TWE: DI 8 IE 7
<ul style="list-style-type: none"> describe patterns using mathematical language; 	SE: 167 <i>Study Guide and Review</i> 47
<ul style="list-style-type: none"> solve problems and model real-world situations using patterns and functions; 	SE: 7, 369-372, 687, 690-691, 693 TWE: IE 7 OA 373
<ul style="list-style-type: none"> compare and contrast different types of functions; and 	SE: 376, 379, 383, 687-690 TWE: DI 688 IE 688
<ul style="list-style-type: none"> describe the connections among representations of patterns and functions, including words, tables, graphs, and symbols. 	SE: 7, 369, 687-688, 692 <i>Algebra Activity</i> 368 <i>Reading Mathematics</i> 380 <i>Study Guide and Review</i> 47
GRADES 5-8 As students in grades 5-8 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> representing, describing, and analyzing patterns and relationships using tables, graphs, verbal rules, and standard algebraic notation; 	SE: 7, 369, 687-688, 692 <i>Algebra Activity</i> 368 <i>Reading Mathematics</i> 380 <i>Study Guide and Review</i> 47
<ul style="list-style-type: none"> describing patterns using variables, expressions, equations, and inequalities in problem-solving situations; 	SE: 167 <i>Study Guide and Review</i> 47
<ul style="list-style-type: none"> analyzing functional relationships to explain how a change in one quantity results in a change in another (<i>for example, how the area of a circle changes as the radius increases, or how a person's height changes over time</i>); 	SE: 369-372, 381-384, 687, 690-691, 695-696 <i>Reading Mathematics</i> 380 TWE: IE 382 OA 373, 379
<ul style="list-style-type: none"> distinguishing between linear and nonlinear functions through informal investigations; and 	SE: 687-691, 696 <i>Extra Practice</i> 757 <i>Study Guide and Review</i> 700 TWE: DI 688 IE 688, 689 OA 691 TT 691

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<ul style="list-style-type: none"> solving simple linear equations in problem-solving situations using a variety of methods (<i>informal, formal, graphical</i>) and a variety of tools (<i>physical materials, calculators, computers</i>). 	SE: 375-379, 381-385, 404-408 <i>Study Guide and Review</i> 425, 427 TWE: IE 376, 382, 405
STANDARD 3: Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> solve problems by systematically collecting, organizing, describing, and analyzing data using surveys, tables, charts, and graphs; 	SE: 376, 447, 606-611, 612-616, 617-621, 623-628 <i>Algebra Activity</i> 309 <i>Graphing Calculator Investigation</i> 622, 629
<ul style="list-style-type: none"> make valid inferences, decisions, and arguments based on data analysis; and 	SE: 240, 630-633 <i>Algebra Activity</i> 39, 180, 237, 253, 275, 386, 392 <i>Reading Mathematics</i> 634
<ul style="list-style-type: none"> use counting techniques, experimental probability, or theoretical probability, as appropriate, to represent and solve problems involving uncertainty. 	SE: 310-314, 635-639 <i>Graphing Calculator Investigation</i> 315 <i>Study Guide and Review</i> 611 TWE: IE 311, 636
GRADES 5-8 As students in grades 5-8 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> reading and constructing displays of data using appropriate techniques (<i>for example, line graphs, circle graphs, scatter plots, box plots, stem-and-leaf plots</i>) and appropriate technology; 	SE: 377, 447, 606-611, 612, 616, 617-621, 623-628 <i>Algebra Activity</i> 309 <i>Graphing Calculator Investigation</i> 622, 629
<ul style="list-style-type: none"> displaying and using measures of central tendency, such as mean, and mode, and measures of variability, such as range and quartiles; 	SE: 238-242, 248, 252, 618 <i>Algebra Activity</i> 237 <i>Getting Started</i> 605 <i>Graphing Calculator Investigation</i> 243 TWE: IE 239
<ul style="list-style-type: none"> evaluating arguments that are based on statistical claims; 	SE: 610, 630-633 <i>Algebra Activity</i> 656-657 <i>Graphing Calculator Investigation</i> 629 TWE: DI 611, 632 OA 611, 633 TT 615
<ul style="list-style-type: none"> formulating hypotheses, drawing conclusions, and making convincing arguments based on data analysis; 	SE: 40-44, 409-413 <i>Algebra Activity</i> 39 <i>Graphing Calculator Investigation</i> 45-46 <i>Study Guide and Review</i> 50 <i>Web Quest</i> 422
<ul style="list-style-type: none"> determining probabilities through experiments or simulations; 	SE: <i>Algebra Activity</i> 309 <i>Graphing Calculator Investigation</i> 315

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<ul style="list-style-type: none"> making predictions and comparing results using both experimental and theoretical probability drawn from real-world problems; and 	SE: 310-314, 333, 338, 672, 677 <i>Algebra Activity 309</i> <i>Graphing Calculator Investigation 315</i> <i>Study Guide and Review 320</i> TWE: IE 311 OA 314
<ul style="list-style-type: none"> using counting strategies to determining all the possible outcomes from an experiment (<i>for example, the number of ways students can line up to have their picture taken</i>). 	SE: 635-639, 641-645, 649 <i>Algebra Activity 640</i> TWE: DI 636 IE 636, 642
STANDARD 4: Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> connect various physical objects with their geometric representation; 	SE: 449-450, 455-456, 461, 463, 472-474, 477, 481, 502-504 <i>Algebra Activity 505</i> TWE: OA 451
<ul style="list-style-type: none"> connect mathematical concepts from across the standards with their geometric representations; 	SE: 441, 445, 460-464 <i>Algebra Activity 458-459, 465, 476</i>
<ul style="list-style-type: none"> recognize, draw, describe, and analyze geometric shapes in one, two, and three dimensions; 	SE: 439, 453-457, 500-501, 516, 556-561 <i>Algebra Activity 512, 518-519</i> <i>Geometry Activity 562</i>
<ul style="list-style-type: none"> make, investigate, and test conjectures about geometric ideas; and 	SE: 471, 473 <i>Algebra Activity 512, 583</i>
<ul style="list-style-type: none"> solve problems and model real-world situations using geometric concepts. 	SE: 438, 474, 479, 525, 541, 564, 575, 579, 584, 586
GRADES 5-8 As students in grades 5-8 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> constructing two- and three-dimensional models using a variety of materials and tools; 	SE: 447-451 <i>Algebra Activity 465</i> <i>Spreadsheet Investigation 452</i> TWE: DI 454, 462, 480, 502 IE 574 T 458 OA 517
<ul style="list-style-type: none"> describing, analyzing, and reasoning informally about the properties (<i>for example, parallelism, perpendicularity, congruence</i>) of two- and three-dimensional figures; 	SE: 449, 453-455, 492-497, 500-504 <i>Reading Mathematics 446</i> TWE: IE 501
<ul style="list-style-type: none"> applying the concepts of ratio, proportion, and similarity in problem-solving situations; 	SE: 264-268, 270-274, 471-475 <i>Algebra Activity 275</i> TWE: IE 266, 272, 473
<ul style="list-style-type: none"> solving problems using coordinate geometry; 	SE: 36-38, 42-44, 85-89, 466-470 <i>Algebra Activity 39</i> TWE: IE 87
<ul style="list-style-type: none"> solving problems involving perimeter and area in two dimensions, and involving surface area and volume in three dimensions; and 	SE: 335, 417, 520-525, 533-538, 539-543, 563-567, 568-572, 676 <i>Algebra Activity 518-519</i> <i>Spreadsheet Investigation 137</i>

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<ul style="list-style-type: none"> transforming geometric figures using reflections, translations, and rotations to explore congruence. 	SE: 506-511 <i>Algebra Activity</i> 505, 512, 532 TWE: DI 508 IE 508, 509 OA 511
STANDARD 5: Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> understand and apply the attributes of length, capacity*, weight, mass, time, temperature, perimeter, area, volume, and angle measurement in problem-solving situations; 	SE: 335, 417, 447, 524-525, 534, 539, 541, 571, 575, 581
<ul style="list-style-type: none"> make and use direct and indirect measurements to describe and compare real-world phenomena; 	SE: 471-475 <i>Study Guide and Review</i> 486 TWE: IE 472, 473 OA 475
<ul style="list-style-type: none"> understand the structure and use of systems of measurement; 	SE: 118, 168, 213, 263, 272, 592 <i>Prerequisite Skills</i> 718-721
<ul style="list-style-type: none"> describe and use rates of change (<i>for example, temperature as it changes throughout the day, or speed as the rate of change of distance over time</i>) and other derived measures; and 	SE: 393-397 <i>Algebra Activity</i> 392 <i>Extra Practice</i> 143 <i>Study Guide and Review</i> 426 TWE: IE 394, 395 OA 397
<ul style="list-style-type: none"> select appropriate units, including metric and U.S. customary, and tools (<i>for example, rulers, protractors, compasses, thermometers</i>) to measure to the degree of accuracy required to solve a given problem. 	SE: 118, 590-594 <i>Prerequisite Skills</i> 718-721 <i>Reading Mathematics</i> 589 TWE: IE 591
GRADES 5-8 As students in grades 5-8 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> estimating, using, and describing measures of distance, perimeter, area, volume, capacity, weight, mass, and angle comparison; 	SE: 131-135, 152, 466-470, 492-497, 520-528, 533-538, 568-572 <i>Algebra Activity</i> 518-519 TWE: DI 134, 467
<ul style="list-style-type: none"> estimating, making, and using direct and indirect measurements to describe and make comparisons; 	SE: 471-475 <i>Study Guide and Review</i> 486 TWE: IE 472, 473 OA 475
<ul style="list-style-type: none"> reading and interpreting various scales including those based on number lines, graphs, and maps; 	SE: 276-280, 285 <i>Extra Practice</i> 737 <i>Geometry Activity</i> 583 <i>Study Guide and Review</i> 317 TWE: IE 277 OA 280 SC 277
<ul style="list-style-type: none"> developing and using formulas and procedures to solve problems involving measurement; 	SE: 131-135, 466-470 <i>Study Guide and Review</i> 485-486 TWE: DI 134 IE 132, 133, 467

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<ul style="list-style-type: none"> describing how a change in an object's linear dimensions affects its perimeter, area, and volume; and 	SE: 567, 573 <i>Geometry Activity 583</i>
<ul style="list-style-type: none"> selecting and using appropriate units and tools to measure to the degree of accuracy required in a particular problem-solving situation. 	SE: 590-593 TWE: IE 591
STANDARD 6: Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> model, explain, and use the four basic operations - addition, subtraction, multiplication, and division - in problem-solving situations; 	SE: 64-68, 70-74, 75-79, 110-113, 115-119, 232-236, 244-245, 351-352 <i>Reading Mathematics 69</i>
<ul style="list-style-type: none"> develop, use, and analyze algorithms*; and 	SE: 6, 8, 34, 71, 98-99, 120-122, 131-136, 154 <i>Spreadsheet Investigation 22, 137</i>
<ul style="list-style-type: none"> select and apply appropriate computational techniques to solve a variety of problems and determine whether the results are reasonable. 	SE: 6-8, 66, 71, 116, 127, 187, 473, 534, 586
GRADES 5-8 As students in grades 5-8 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> using models to explain how ratios, proportions, and percents can be used to solve real-world problems; 	SE: 264-268, 270-274, 288-292, 293-297, 471 <i>Algebra Activity 275, 286-287</i> TWE: IE 265, 271
<ul style="list-style-type: none"> constructing, using, and explaining procedures to compute and estimate with whole numbers, fractions, decimals, and integers; 	SE: 6-8, 66, 71, 116, 127, 187, 473, 534, 586
<ul style="list-style-type: none"> developing, applying, and explaining a variety of different estimation strategies in problem-solving situations, and explaining why an estimate may be acceptable in place of an exact answer; and 	SE: 6-8, 71, 121, 127, 187, 473, 534, 586 TWE: OA 10
<ul style="list-style-type: none"> selecting and using appropriate methods for computing with commonly used fractions and decimals, percents, and integers in problem-solving situations from among mental arithmetic, estimation, paper-and-pencil, calculator, and computer methods, and determine whether the results are reasonable. 	SE: 8, 121, 209, 437-439, 478-489 <i>Graphing Calculator Investigation 315</i> <i>Spreadsheet Investigation 22, 137, 303, 452</i>

Codes Used for TWE Pages

DI	Daily Intervention	SN	Study Notebook
IE	In-Class Examples	T	Teach
OA	Open-Ended assessment	TT	Tips for New Teachers
SC	Skills Check		