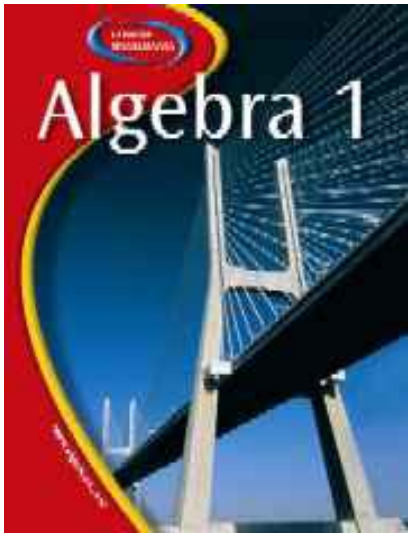
Mc Graw Hill Glencoe

Mathematics
Curriculum Framework
Grade 8

Arkansas



Algebra 1

STANDARDS	PAGE REFERENCES
Strand: Number and Operations	
Standard 1: Number Sense **Students shall understand numbers, ways of representing numbers, relationships among numbers and number systems**	
Rational Numbers	
NO.1.8.1 Read, write, compare and solve problems, with and without appropriate *technology*, including numbers less than 1 in *scientific notation*	**Student Edition:** 75-77, 79-82, 84-87, 103-109, 155-159, 160-164, 425-430 **Teacher Wraparound Edition:** ICE 75, 80, 85, 104-106, 156-157, 161, 426-427
NO.1.8.2 Convert between *scientific notation* and standard *notation*, including numbers from zero to one	**Student Edition:** 425-430, 436 #61-#64, 443 #51-#54, 469 #12-#19, 471 #17 *Extra Practice* 837 *Study Guide and Review* 466 #29-#37 **Teacher Wraparound Edition:** DI 426; ICE 426-427; OEA 430; W 425

Codes used for Teacher Wraparound Edition pages are the initial caps of headings on that page.

STANDARDS	PAGE REFERENCES
NO.1.8.3 Compare and order *real numbers* including *irrational numbers* and find their approximate location on a number line (Use *technology* when appropriate)	**Student Edition:** 68-72, 73-78, 104-109, 115 #28-#30, 116 #9 *Extra Practice* 823, 825 *Study Guide and Review* 114 #67-#69 **Teacher Wraparound Edition:** ICE 69, 105-106; OEA 72; TNT 106
NO.1.8.4 Understand and justify classifications of numbers in the *real number* system	**Student Edition:** 68-72, 104-109 *Extra Practice* 823, 825 *Study Guide and Review* 110 #11, 114 #64-#66 **Teacher Wraparound Edition:** ICE 69, 104
Standard 2: Properties of Number Operations **Students shall understand meanings of operations and how they relate to one another**	
Number Theory	
NO.2.8.1 Apply the addition, subtraction, multiplication and division properties of equality to two-step *equations*	**Student Edition:** 142-148, 149-154, 155-159 *Algebra Activity* 141 *Extra Practice* 826, 827 *Study Guide and Review* 181 #27-#32, 182 #33-#44 **Teacher Wraparound Edition:** DI 144; ICE 143-144, 150, 156-157; OEA 148, 154
NO.2.8.2 Understand and apply the *inverse* and *identity* properties	**Student Edition:** 21-25, 31 #58-#63, 33-36 *Extra Practice* 821 *Study Guide and Review* 59 #48-#53 **Teacher Wraparound Edition:** ICE 22; OEA 25

STANDARDS	PAGE REFERENCES
NO.2.8.3 Use *inverse* relationships (addition and subtraction, multiplication and division, squaring and *square roots*) in problem solving situations	**Student Edition:** 131-133, 135-140, 142-147, 149-153, 171-177, 340-344, 598-603, 605-610 **Teacher Wraparound Edition:** ICE 131, 137, 143, 172-173, 340, 598, 606-607
NO.2.8.4 Apply rules (conventions) for *order of operations* to *rational numbers*	**Student Edition:** 11-15, 16-20, 23-25, 63 #6-#15, 140 #67-#70 *Getting Started* 119 #7-#14, 194 #15-#20 *Extra Practice* 820 *Study Guide and Review* 58 #21-#35, 59 #36-#53 **Teacher Wraparound Edition:** DI 15; ICE 12, 17, 22; OEA 15
Understand Operations	
NO.2.8.5 Model and develop addition, subtraction, multiplication and division of *rational numbers* Ex. -8½ + 2¾	**Student Edition:** 73-78, 79-83, 84-87 *Algebra Activity* 28 *Extra Practice* 823, 824 *Getting Started* 67 #1-#8 *Study Guide and Review* 111, 112 #37-#48 **Teacher Wraparound Edition:** H 79; ICE 74-75, 80, 85; OEA 78, 86
Standard 3: Numerical Operations and Estimation **Students shall compute fluently and make reasonable estimates**	
Computational Fluency	
NO.3.8.1 Compute, with and without appropriate *technology*, with *rational numbers* in multi-step problems	**Student Edition:** 11-15, 27-31, 32-36, 70-72, 605-610, 611-615 *Prerequisite Skills* 818-819 *Study Guide and Review* 58-60 **Teacher Wraparound Edition:** ICE 12, 27, 33, 70, 606-607, 612

STANDARDS	PAGE REFERENCES
NO.3.8.2 Solve, with and without appropriate *technology*, multi-step problems using a variety of methods and tools (i.e. objects, mental computation, paper and pencil)	**Student Edition:** 16-20, 142-148, 149-154, 155-159, 160-164, 171-177 *Algebra Activity* 141 *Study Guide and Review* 59 #36-#47 **Teacher Wraparound Edition:** ICE 17, 143-144, 150-151, 156-157, 161, 172-173
Estimation	
NO.3.8.3 Use *estimation* to solve problems involving *rational numbers*; including *ratio*, *proportion*, *percent* (increase or decrease) then judge the reasonableness of solutions	**Student Edition:** 17-19, 50-55, 121-126, 142, 155-159, 266-267, 282, 535 **Teacher Wraparound Edition:** DI 535; H 142; ICE 17, 51-52, 121, 266; TNT 106
Application of Computation	
NO.3.8.4 Apply factorization to find *LCM* and *GCF* of *algebraic expressions* Ex. $4x^2 y^3$ $6xy^2$ *GCF*=$2xy^2$ *LCM*=$12x^2y^3$	**Student Edition:** 474-479, 544 #62-#63, 649-651, 678-683 *Extra Practice* 839, 848 *Getting Ready for the Next Lesson* 677 #63-#71 *Getting Started* 641 #9-#14 *Prerequisite Skills* 798-799 *Study Guide and Review* 515, 699 **Teacher Wraparound Edition:** ICE 476, 649, 679-680
NO.3.8.5 Calculate and find approximations of *square roots* with appropriate *technology*	**Student Edition:** 103-109, 115 #25-#30, 116 #9, 126 #56-#59, 196 #56-#59, 539-544, 546-552, 605-610, 611-615 *Getting Started* 473 #13-#16, 585 #1-#4 *Study Guide and Review* 114 #60-#70 **Teacher Wraparound Edition:** ICE 104-105, 540; TNT 106

STANDARDS	PAGE REFERENCES
NO.3.8.6 Solve, with and without *technology*, real world *percent* problems including *percent* of increase or decrease	**Student Edition:** 160-164, 177 #42-#44, 357 #54-#56 *Extra Practice* 827 *Reading Mathematics* 165 *Study Guide and Review* 183 **Teacher Wraparound Edition:** DI 161; ICE 161
Strand: Algebra	
Standard 4: Patterns, Relations and Functions **Students shall recognize, describe, and develop patterns, relations and functions**	
Patterns, Relations and Functions	
A.4.8.1 Find the n^{th} term in a *pattern* or a *function* table	**Student Edition:** 233-238, 567-572 *Extra Practice* 830, 843 *Spreadsheet Investigation* 232 *Study Guide and Review* 578 #42-#44 **Teacher Wraparound Edition:** ICE 234-235, 569
A.4.8.2 Using real world situations, describe *patterns* in words, tables, pictures, and symbolic representations	**Student Edition:** 233-238, 240-245, 567-572 *Algebra Activity* 573 **Teacher Wraparound Edition:** DI 235; H 233, 240, 567; ICE 242, 568
A.4.8.3 Interpret and represent a two operation *function* as an *algebraic equation* Ex. y = 2x + 1	**Student Edition:** 235-237, 240-245, 272-277, 280-285 *Study Guide and Review* 250 #52-#53, 310 **Teacher Wraparound Edition:** ICE 235, 242, 273-274, 281-282

STANDARDS	PAGE REFERENCES
A.4.8.4 Use tables, graphs, and *equations* to identify *independent/dependent variables (input/output)*	**Student Edition:** 43-48, 213-217 *Algebra Activity* 271 **Teacher Wraparound Edition:** ICE 44
Standard 5: Algebraic Representations **Students shall represent and analyze mathematical situations and structures using algebraic symbols**	
Expressions, Equations and Inequalities	
A.5.8.1 Solve and graph two-step *equations* and *inequalities* with one *variable* and verify the reasonableness of the result with real world application with and without *technology*	**Student Edition:** 128-134, 135-140, 142-148, 155-159, 318-323, 325-331, 332-337 *Algebra Activity* 141, 324 *Study Guide and Review* 361 #36-#41 **Teacher Wraparound Edition:** ICE 129-130, 136-137, 319-320, 326-328, 333-334
A.5.8.2 Solve and graph *linear equations* (in the form y=*m*x+*b*)	**Student Edition:** 212-217, 218-223, 272-277, 323 #66-#68, 351 #74-#79 *Getting Started* 367 *Graphing Calculator Investigation* 278-279 *Study Guide and Review* 248-249, 310 #31-#36 **Teacher Wraparound Edition:** ICE 213, 219-220, 273-274
A.5.8.3 Translate sentences into *algebraic equations* and *inequalities* and combine like terms within *polynomials*	**Student Edition:** 13-14, 17-20, 34-35, 120-126, 320-323, 333-337, 340-344 *Reading Mathematics* 10 *Study Guide and Review* 60 #72-#75 **Teacher Wraparound Edition:** ICE 12, 17, 34, 121-122, 320, 333

STANDARDS	PAGE REFERENCES
A.5.8.4 Write and evaluate *algebraic expressions* using *rational numbers*	**Student Edition:** 11-15, 23, 25 #50-#56 *Extra Practice* 820, 821 *Getting Started* 119 *Study Guide and Review* 58-59 **Teacher Wraparound Edition:** DI 15; ICE 12, 22; OEA 15
Standard 6: Algebraic Models **Students shall develop and apply mathematical models to represent and understand quantitative relationships**	
Algebraic Models and Relationships	
A.6.8.1 Describe, with and without appropriate *technology*, the relationship between the graph of a line and its equation, including being able to explain the meaning of slope as a constant rate of change (rise/run) and *y-intercept* in real world problems	**Student Edition:** 218-223, 256-262, 272-277, 280-285, 292-297, 298-305 *Graphing Calculator Investigation* 224-225, 278-279 **Teacher Wraparound Edition:** ICE 220, 273-274, 300
A.6.8.2 Represent, with and without appropriate *technology*, *linear* relationships concretely, using tables, graphs and *equations*.	**Student Edition:** 240-245, 262 #63, #64, #69, 272-277, 280-285, 286-291, 292-297 *Graphing Calculator Investigation* 278-279 *Study Guide and Review* 250 #52-#53 **Teacher Wraparound Edition:** ICE 242, 273-274, 281-282, 287-288, 293-294; OEA 291; W 240
A.6.8.3 Differentiate between *independent/dependent variables* given a *linear relationship* in context	**Student Edition:** 43-48, 213-217 *Algebra Activity* 271 **Teacher Wraparound Edition:** ICE 44

STANDARDS	PAGE REFERENCES
A.6.8.4 Represent, with and without appropriate *technology*, simple exponential and/or quadratic *functions* using verbal descriptions, tables, graphs and formulas and translate among these representations	**Student Edition:** 524-530, 533-538, 554-560, 561-565 *Graphing Calculator Investigation* 531-532, 545 **Teacher Wraparound Edition:** DI 535, 557, 562; H 561; ICE 525-527, 534-535, 555-557, 562-563
Standard 7: Analysis of Change **Students shall analyze change in various contexts**	
Analyze Change	
A.7.8.1 Use, with and without *technology*, graphs of real life situations to describe the relationships and analyze change including graphs of change (cost per minute) and graphs of accumulation (total cost)	**Student Edition:** 43-48, 50-55, 206-210, 218-223 *Algebra Activity* 49 *Spreadsheet Investigation* 56 *Study Guide and Review* 61-62 **Teacher Wraparound Edition:** ICE 44-45, 52, 207, 220; OEA 48
Strand: Geometry	
Standard 8: Geometric Properties **Students shall analyze characteristics and properties of 2 and 3 dimensional geometric shapes and develop mathematical arguments about geometric relationships**	
Characteristics of Geometric Shapes	
G.8.8.1 Form generalizations and validate conclusions about properties of geometric shapes	**Student Edition:** 197-203, 292-297, 457 #63-#64, 605-610, 611-615, 616-621 Algebra Activity 122 Reading Mathematics 338 Study Guide and Review 311-312, 634-636 **Teacher Wraparound Edition:** ICE 198-200, 293-294, 606-607, 617-618

STANDARDS	PAGE REFERENCES
G.8.8.2 Make, with and without appropriate *technology*, and test *conjectures* about characteristics and properties between *two-dimensional* figures and *three-dimensional* objects Ex. circle vs. cylinder, square vs. *cube*	**Student Edition:** *Algebra Activity* 122, 416 *Prerequisite Skills* 810-811, 812, 813-814, 815-816, 817
G.8.8.3 Determine appropriate application of geometric ideas and relationships, such as *congruence*, similarity, and the *Pythagorean theorem*, with and without appropriate *technology*	**Student Edition:** 605-610, 611-615, 616-621, 623-630 *Study Guide and Review* 634-636 **Teacher Wraparound Edition:** DI 618; ICE 606-607, 612, 617-618, 624-626
Standard 9: Transformation of Shapes **Students shall apply transformations and the use of symmetry to analyze mathematical situations**	
Symmetry and Transformations	
G.9.8.1 Determine a *transformation's line* of *symmetry* and compare the properties of the figure and its *transformation*	**Student Edition:** Transformations are performed on: 197-203, 217 #59-#60 *Study Guide and Review* 247 #17-#20 **Teacher Wraparound Edition:** ICE 198-200; OEA 203
G.9.8.2 Draw the results of *translations* and *reflections* about the x- and y-axis and *rotations* of objects about the origin	**Student Edition:** 198-203, 217 #59-#60 *Study Guide and Review* 247 #17, #20 **Teacher Wraparound Edition:** ICE 198-200; OEA 203

STANDARDS	PAGE REFERENCES
Standard 10: Coordinate Geometry **Students shall specify locations and describe spatial relationships using coordinate geometry and other representational systems**	
Coordinate Geometry	
G.10.8.1 Use coordinate geometry to explore the links between geometric and algebraic representations of problems (lengths of segments/distance between points, *slope*/*perpendicular-parallel lines*)	**Student Edition:** 256-262, 264-270, 272-277, 292-297, 611-615 *Study Guide and Review* 308, 311-312, 635 **Teacher Wraparound Edition:** DI 294, 613; ICE 257-258, 293-294, 612; OEA 262
Standard 11: Visualization and Geometric Models **Students shall use visualization, spatial reasoning and geometric modeling**	
Spatial Visualization and Models	
G.11.8.1 Using isometric dot paper interpret and draw different views of buildings	See Glencoe's *Pre-Algebra* © 2005 **Student Edition:** 554-555, 558-561
Strand: Measurement	
Standard 12: Physical Attributes **Students shall use attributes and tools of measurement to describe and compare mathematical and real-world objects**	
Attributes and Tools	
M.12.8.1 Understand, select and use, with and without appropriate *technology*, the appropriate units and tools to measure angles, *perimeter*, *area*, *surface area* and *volume* to solve real world problems	**Student Edition:** 147 #49, #54, 512 #23-#24, 513 #41-#42, 623-630, 647 #43-#45 *Getting Started* 5 #9-#12 *Mixed Problem Solving* 855 #1-#4, 860 #1-#4 *Prerequisite Skills* 813-814, 815-816, 817 **Teacher Wraparound Edition:** ICE 625-626
M.12.8.2 Describe and apply equivalent measures using a variety of units within the same system of measurement	See Glencoe's *Pre-Algebra* © 2005 **Student Edition:** 718-719, 720-721

STANDARDS	PAGE REFERENCES
Standard 13: Systems of Measurement **Students shall identify and use units, systems and processes of measurement**	
Attributes and Tools	
M.13.8.1 Draw and apply measurement skills with *fluency* to appropriate levels of precision	**Student Edition:** *Algebra Activity* 271, 299, 622 Measurements are calculated on: 605-610, 611-615, 616-621, 623-630 **Teacher Wraparound Edition:** ICE 606, 612, 617-618, 625
Applications	
M.13.8.2 Solve problems involving *volume* and *surface area* of *pyramids*, *cones* and composite figures, with and without appropriate *technology*	**Student Edition:** 9 #44, 124 #24 *Algebra Activity* 122, 416 *Mixed Problem Solving* 853 #1-#2, 855 #1-#4
M.13.8.3 Apply proportional reasoning to solve problems involving indirect measurements, scale drawings or rates	**Student Edition:** 155-159, 616-621 *Reading Mathematics* 165 *Study Guide and Review* 635-636 **Teacher Wraparound Edition:** DI 618; ICE 157, 617-618
M.13.8.4 Find the distance between two points on a *coordinate plane* using with the *Pythagorean theorem*	**Student Edition:** 611-615 *Study Guide and Review* 635 **Teacher Wraparound Edition:** ICE 612
M.13.8.5 Estimate and compute the *area* of irregular *two-dimensional* shapes	**Student Edition:** 420 Example #5, 447 #37-#38, 456 #53, 462 #46-#47, 485 #44-#45

STANDARDS	PAGE REFERENCES
Strand: Data Analysis and Probability	
Standard 14: Data Representation **Students shall formulate questions that can be addressed with data and collect, organize and display**	
Collect, organize and display data	
DAP.14.8.1 Design and conduct investigations which include • adequate number of trials • unbiased sampling • accurate measurement • record-keeping	**Student Edition:** *Algebra Activity* 271, 299, 347, 622, 783 **Teacher Wraparound Edition:** TT 99
DAP.14.8.2 Explain which types of display are appropriate for various data sets (*scatter plot* for relationship between two variants and *line of best fit*)	**Student Edition:** 50-55, 88-94, 298-305 *Algebra Activity* 743-744 **Teacher Wraparound Edition:** ICE 51; OEA 55, 305
DAP.14.8.3 Interpret or solve real world problems using data from charts, *line plots, stem-and leaf plots, double-bar graphs, line graphs, box-and whisker plots, scatter plots, frequency tables or double line graphs*	**Student Edition:** 50-55, 88-94, 298-305, 722-728, 737-742, 758 #27-#30 *Algebra Activity* 49 *Reading Mathematics* 95 *Study Guide and Review* 62 **Teacher Wraparound Edition:** ICE 51-52, 89-91, 299-301, 723-724, 738-739
Standard 15: Data Analysis **Students shall select and use appropriate statistical methods to analyze data**	
Data Analysis	
DAP.15.8.1 Compare and contrast the reliability of data sets with different size populations Ex. 40/80 vs. 40/800	**Student Edition:** Data is compared on: 723-726 **Teacher Wraparound Edition:** ICE 723

STANDARDS	PAGE REFERENCES
DAP.15.8.2 Analyze, with and without appropriate *technology*, graphs by comparing measures of *central tendencies* and *measures of spread*	**Student Edition:** 88-94, 731-736 *Prerequisite Skills* 818-819 *Study Guide and Review* 113 **Teacher Wraparound Edition:** ICE 90-91, 732-733
DAP.15.8.3 Given at least one of the measures of *central tendency* create a data set	**Student Edition:** 91 #3, 93 #38
DAP.15.8.4 Describe how the inclusion of *outliers* affects those measures	**Student Edition:** Outliers are defined and found on: 733-736, 737-742 *Study Guide and Review* 747-748 **Teacher Wraparound Edition:** ICE 733
Standard 16: Inferences and Predictions **Students shall develop and evaluate inferences and predictions that are based on data**	
Inferences and Predictions	
DAP.16.8.1 Use observations about differences between sets of data to make *conjectures* about the populations from which the data was taken	**Student Edition:** Sets of data are compared on: 723-726 *Algebra Activity* 743-744 **Teacher Wraparound Edition:** ICE 723
Standard 17: Probability **Students shall understand and apply basic concepts of probability**	
Probability	
DAP.17.8.1 Compute, with and without appropriate *technology*, probabilities of compound events, using organized lists, *tree diagrams* and *logic grid*	**Student Edition:** 754-758, 760-767, 769-776 *Extra Practice* 851 *Study Guide and Review* 798-791 **Teacher Wraparound Edition:** H 754; ICE 755-756, 761-763, 770-772; OEA 758

STANDARDS	PAGE REFERENCES
DAP.17.8.2 Make predictions based on *theoretical probabilities*, design and conduct an experiment to test the predictions, compare actual results to predict results, and explain differences Ex. suggested materials for simulations are: polyhedra die, random number table, and *technology*	**Student Edition:** 782-787 *Algebra Activity* 102, 783 *Extra Practice* 852 *Study Guide and Review* 792 **Teacher Wraparound Edition:** DI 784; ICE 784; OEA 788; TT 785