



# Mathematics

Applications and Concepts  
Course 2  
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STANDARDS		PAGE REFERENCES
<b>M7.A Numbers and Operations</b>		
<b>ASSESSMENT ANCHOR</b>		
<b>M7.A.1</b>	<b>Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.</b>	
<b>M7.A.1.1</b>	<b>Express numbers in equivalent forms.</b>	
<b>M7.A.1.1.1</b>	Convert between fractions, decimals and/or percents (e.g., $20\% = 0.2 = 1/5$ ) (terminating decimals only).	<b>Student Edition:</b> 210-213, 214 (13-15), 216-219, 220-223, 235 (7-15), 312-315, 316-318, 328, 575 <b>Teacher's Guide:</b> A 213, 219, 315; DI 313, 317; IE 211, 217; PS 235
<b>M7.A.1.2</b>	<b>Compare quantities and/or magnitudes of numbers.</b>	
<b>M7.A.1.2.1</b>	Compare and/or order whole numbers, mixed numbers, fractions and decimals (fractions and decimals may be mixed – no more than 5 numbers in a set to be ordered).	<b>Student Edition:</b> 13 #59, 227-231, 234 (64-69), 237 (19), 556 <b>Teacher's Guide:</b> A 231; DI 228
<b>M7.A.1.2.2</b>	Locate/identify decimals, fractions, mixed numbers and/or integers on a number line (a mix of these number forms may be on the same number line).	<b>Student Edition:</b> 106, 146 (7), 556 <b>Teacher's Guide:</b> A 111; DI 106; TNT 121

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<b>ASSESSMENT ANCHOR</b>		
<b>M7.A.2</b>	<b>Understand the meanings of operations, use operations and understand how they relate to each other.</b>	
<b>M7.A.2.1</b>	<b>Complete calculations by applying the order of operations.</b>	
<b>M7.A.2.1.1</b>	Use the order of operations to simplify numerical expressions (may use parentheses, brackets, +, -, x, ÷, squares up to $10^2$ and cubes up to $4^3$ ; whole numbers only).	<b>Student Edition:</b> 14-17, 19 #2-#5, 21 #50-#53, 27 #51-#53, 33 #51, 49 #7-#10, 50 #2, 51 #13, 100 #2, 191 #11 <b>Teacher's Guide:</b> A 17; B 14; DI 15; IE 15
<b>M7.A.2.2</b>	<b>Solve problems using ratios, proportions, percents and/or rates.</b>	
<b>M7.A.2.2.1</b>	Write ratios to compare quantities (e.g., ratio of boys to girls).	<b>Student Edition:</b> 286, 288-291, 297 (WHEN), 326, 330 #5, 350-353, 580, 602 #1, #2 <b>Teacher's Guide:</b> B 288
<b>M7.A.2.2.2</b>	Solve for a variable in a given proportion.	<b>Student Edition:</b> 298-300, 323-325, 330 #7, 345 #1 <i>Hands-on Lab</i> 301 <i>The Game Zone</i> 311
<b>M7.A.2.2.3</b>	Use proportions to determine if two quantities are equivalent (e.g., similar figures, prices of different sized items, etc).	<b>Student Edition:</b> 297-300, 304-308, 440-443, 450 #36, 454 #22, 464 #21, #22, 602 #6 <i>Hands-on Lab</i> 301 <b>Teacher's Guide:</b> DI 441; IE 298, 441
<b>M7.A.2.2.4</b>	Calculate and/or apply unit rates or unit prices (terminating decimals through the hundredth place only).	<b>Student Edition:</b> 292-295, 326, 327, 580, 602 #3, #4 <b>Teacher's Guide:</b> A 295; DI 293; IE 293
<b>M7.A.2.2.5</b>	Select and/or use ratios or proportions to solve problems.	<b>Student Edition:</b> 231 #56, 289 #5, 291 #33, 298 #4, 300 #44, 304-307, 319 #1, 602 #5 <i>Hands-on Lab</i> 296, 301 <i>The Game Zone</i> 311 <b>Teacher's Guide:</b> DI 289; PS 329

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<p><b>M7.A.2.2.6</b> Use proportions to find the missing length of a side in similar figures.</p>	<p><b>Student Edition:</b> 440-443, 450 #36, 454 #22, 464 #21, #22, 602 #6</p> <p><b>Teacher’s Guide:</b> A 443; B 440; DI 441; IE 441</p>
<p><b>ASSESSMENT ANCHOR</b></p>	
<p><b>M7.A.3</b>      <b>Compute accurately and fluently and make reasonable estimates.</b></p>	
<p><b>M7.A.3.1</b>      <b>Apply estimation strategies to a variety of problems.</b></p>	
<p><b>M7.A.3.1.1</b> Estimate answers to problems involving whole numbers, decimals, fractions or mixed numbers.</p>	<p><b>Student Edition:</b> 6-9, 21 #43, 211, 240-243, 248-249, 265, 278, 313 #4, 319, 475-477, 558</p> <p><i>Hands-on Lab</i> 301</p> <p><i>Problem-Solving Strategy</i> 133 #14, 253 #12</p> <p><b>Teacher’s Guide:</b> B 240; DI 241; IE 476</p>
<p><b>M7.A.3.2</b>      <b>Compute accurately with and without use of a calculator.</b></p>	
<p><b>M7.A.3.2.1</b> Solve problems involving operations (+, -, x, ÷) of whole numbers, decimals, fractions, or mixed numbers (straight computation or word problems).</p>	<p><b>Student Edition:</b> 6-9, 46, 246 #5, 247, 249 #3, 257, 278-279, 282 #5, 283 #14, 559, 560, 601</p> <p><i>Problem-Solving Strategy</i> 164, 252</p> <p><i>The Game Zone</i> 263</p> <p><i>WebQuest</i> 3, 103, 193</p> <p><b>Teacher’s Guide:</b> IE 245</p>
<p><b>M7.A.3.2.2</b> Solve problems involving addition and subtraction of integers.</p>	<p><b>Student Edition:</b> 104, 120-124, 128-131, 144, 147 #18, 598 #9, #10</p> <p><i>Hands-on Lab</i> 118-119, 126-127</p> <p><b>Teacher’s Guide:</b> DI 129; IE 121</p>

STANDARDS		PAGE REFERENCES
<b>M7.B Measurement</b>		
<b>ASSESSMENT ANCHOR</b>		
<b>M7.B.1</b>	<b>Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.</b>	
<b>M7.B.1.1</b>	<b>Add, subtract, or convert measurements.</b>	
<b>M7.B.1.1.1</b>	<p>Add, subtract, or convert measurements, using only the units below, with and without regrouping (e.g., 4ft – 2ft 5in = 1ft 7in). Answer should be converted to the largest whole unit (e.g., 37oz = 2Lb 5oz or 39in = 1yd 3in. Conversion chart provided on the reference sheet.</p> <ul style="list-style-type: none"> <li>• in, ft, yd</li> <li>• fl oz, cup, pint, quart, gallon</li> <li>• oz, Lb</li> <li>• sec, min, hours, days</li> <li>• metric units including milli, centi and kilo (m, g or L)</li> </ul>	<p><b>Student Edition:</b> 38-41, 48, 51 #18, 130 #45, 146 #3, 223 #34-#37, 237 #16, 249 #3, 267-269, 273 #35-#38, 280, 331 #17, 351 #1, 367 #8</p> <p><i>Study Skill</i> 42 <i>WebQuest</i> 193</p> <p><b>Teacher’s Guide:</b> B 38; DI 39, 267; IE 268</p>
<b>ASSESSMENT ANCHOR</b>		
<b>M7.B.2</b>	<b>Apply appropriate techniques, tools and formulas to determine measurements.</b>	
<b>M7.B.2.1</b>	<b>Develop, use and/or describe strategies to find the measure of length, perimeter, circumference, area or volume.</b>	
<b>M7.B.2.1.1</b>	<p>Develop and/or use strategies to find the perimeter and/or area of compound figures (compound figures should only include quadrilaterals and triangles). Area formulas provided on the reference sheet.</p>	<p><b>Student Edition:</b> 498-500, 506, 509 #18</p> <p><b>Teacher’s Guide:</b> DI 499; IE 499; PS 507</p>
<b>M7.B.2.1.2</b>	<p>Find the circumference and/or area of circles (formulas provided on the reference sheet).</p>	<p><b>Student Edition:</b> 275-277, 280, 343 #38, 493-495</p> <p><i>Hands-on Lab</i> 274</p> <p><b>Teacher’s Guide:</b> A 495; IE 276, 494; PS 281</p>
<b>M7.B.2.1.3</b>	<p>Find the area of triangles and/or all types of parallelograms (formulas provided on the reference sheet).</p>	<p><b>Student Edition:</b> 163 #44, 261 #37, 477 #34, 483-485, 486 #13, #14, 489-492, 509 #20</p> <p><i>Hands-on Lab</i> 488</p> <p><b>Teacher’s Guide:</b> A 484; DI 485; IE 484, 490</p>

STANDARDS		PAGE REFERENCES
<b>M7.B.2.2</b> Construct, interpret and/or use scale drawings to solve real-world problems.		
<b>M7.B.2.2.1</b> Interpret and/or apply scales shown on maps, blueprints, models, etc.	<b>Student Edition:</b> 223 #34-#37, 304-308, 310 #17, #18, 327, 330 #8, 331 #18 <i>Spreadsheet Investigation</i> 309 <b>Teacher's Guide:</b> IE 305	
<b>M7.B.2.2.2</b> Determine and/or apply an appropriate scale for reduction or enlargement.	<b>Student Edition:</b> <i>Spreadsheet Investigation</i> 455	
<b>M7.C Geometry</b>		
<b>ASSESSMENT ANCHOR</b>		
<b>M7.C.1</b> Analyze characteristics and properties of two- and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.		
<b>M7.C.1.1</b> Define and/or apply basic properties of two- and three-dimensional geometric shapes.		
<b>M7.C.1.1.1</b> Identify, describe and/or define diameter, radius, chord and/or circumference in circles.	<b>Student Edition:</b> 275-277, 278 #1, 343 #38, 493 <b>Teacher's Guide:</b> B 275, 493; PS 281	
<b>M7.C.1.1.2</b> Solve problems involving the relationship between the radius and diameter of the same circle.	<b>Teacher's Guide:</b> A 495; DI 493	
<b>M7.C.1.1.3</b> Identify parallel, perpendicular and/or skew line segments within three-dimensional figures.	The following pages can be used to meet this standard with the Teacher's directives and/or class discussion. <b>Student Edition:</b> 514-517, 520-522 <i>WebQuest</i> 409 <b>Teacher's Guide:</b> DI 520	
<b>M7.C.1.2</b> Identify congruence and/or similarity in polygons.		
<b>M7.C.1.2.1</b> Identify and/or use polygons that are similar and/or congruent, given either measurements or tic and angle marks.	<b>Student Edition:</b> 440-443, 450 #36, 464 <i>WebQuest</i> 409 <b>Teacher's Guide:</b> DI 441; IE 441	

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<b>M7.C.1.2.2</b> Identify corresponding sides and/or angles of congruent or similar polygons.	<b>Student Edition:</b> 440-443, 450 #36, 454 #22, 464, 466 #6 <i>WebQuest</i> 409
<b>M7.C.2.1</b> Locate, plot and/or describe points on a coordinate plane.	
<b>M7.C.2.1.1</b> Plot and/or identify ordered pairs on a coordinate plane (all four quadrants).	<b>Student Edition:</b> 112-115, 116 #12-#14, 124 #64-#67, 143, 145, 146, 147 #20, 190 #6, 236 #5, 283 #9, 459 #20, 467 #18, 598 #4-#8 <i>Spreadsheet Investigation</i> 455 <b>Teacher's Guide:</b> DI 113; IE 113
<b>M7.C.2.1.2</b> Identify Quadrants I, II, III, IV, the x- and y-axes and the origin on a coordinate plane.	<b>Student Edition:</b> 112-115, 124 #64-#67, 131 #60, 143, 145, 147 #20, 190 #6, 236 #5, 459 #20, 598 #4-#8 <b>Teacher's Guide:</b> 104D
<b>M7.D Algebraic Concepts</b>	
<b>ASSESSMENT ANCHOR</b>	
<b>M7.D.1</b> Demonstrate an understanding of patterns, relations and functions.	
<b>M7.D.1.1</b> Recognize, reproduce, extend and/or describe patterns.	
<b>M7.D.1.1.1</b> Describe, extend or find a missing element of a pattern (show 3 repetitions of the pattern) <ul style="list-style-type: none"> <li>fractions or decimals – may use only one operation from +, - or x</li> <li>whole numbers – may use only one operation from +, -, x, ÷ or squares</li> </ul>	<b>Student Edition:</b> 8, 10 (WHEN), 34-36, 41 #47-#49, 59 #10, 101 #10 <i>Hands-on Lab</i> 37 <i>Problem-Solving Strategy</i> 132 <b>Teacher's Guide:</b> IE 35
<b>ASSESSMENT ANCHOR</b>	
<b>M7.D.2</b> Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.	
<b>M7.D.2.1</b> Select and/or use appropriate strategies to solve or represent equations or expressions.	
<b>M7.D.2.1.1</b> Select and/or use appropriate strategies to solve one-step equations (no negative numbers).	<b>Student Edition:</b> 24-27, 28 #15-#17, 47, 49, 68 #29-#32, 111 #39-#42, 156-159, 161-163, 169 #45-#48, 175 #45-#48, 187, 258-261, 269 #37-#40, 279, 586 #9, 599, 601 <b>Teacher's Guide:</b> A 27; DI 25; IE 25, 157, 259

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<b>M7.D.2.1.2</b> Use substitution of one and/or two variables to simplify expressions (whole numbers only – use order of operations).	<b>Student Edition:</b> 18-21, 28 #11-#14, 47, 49 <b>Teacher’s Guide:</b> A 21; IE 19	
<b>M7.D.2.2</b> Create and/or interpret expressions, equations or inequalities that model problem situations.		
<b>M7.D.2.2.1</b> Identify expressions, equations or inequalities that model mathematical situations (using whole numbers or decimals, no more than two operations and one variable).	<b>Student Edition:</b> 19 #5, 21 #44, 25 #3, 27 #42, 33 #49, 150-151, 158 #3, 162 #30, 172-175, 181 #49, 186, 187, 191 #19, #20, 596 <i>Hands-on Lab</i> 154-155 <i>Study Skill</i> 153 <b>Teacher’s Guide:</b> A 21; DI 25, 150; IE 151, 173	
<b>ASSESSMENT ANCHOR</b>		
<b>M7.D.3</b> Analyze change in various contexts.		
<b>M7.D.3.1</b> Describe the relationship between two variables (e.g., time, temperature).		
<b>M7.D.3.1.1</b> Solve problems involving a constant rate of change (e.g., word problems, graphs or data tables).	<b>Student Edition:</b> <i>Hands-on Lab</i> 296	
<b>M7.D.3.1.2</b> Describe and/or use the relationship of data displayed on a rate of change graph (e.g., how does the x-axis data relate to the y-axis data).	<b>Student Edition:</b> <i>Hands-on Lab</i> 296	
<b>M7.E Data Analysis and Probability</b>		
<b>ASSESSMENT ANCHOR</b>		
<b>M7.E.1</b> Formulate or answer questions that can be addressed with data and/or organize, display, interpret or analyze data.		
<b>M7.E.1.1</b> Interpret data shown in complex data displays.		
<b>M7.E.1.1.1</b> Analyze data and/or answer questions pertaining to data represented in histograms, double bar graphs, multiple line graphs or stem-and-leaf plots.	<b>Student Edition:</b> 51 #11, 63 #14, 76-79, 85-89, 97, 98, 99, 101 #16, 190 #5 <i>Spreadsheet Investigation</i> 90-91 <i>WebQuest</i> 3, 103, 193 <b>Teacher’s Guide:</b> A 79; DI 77, 85; IE 77, 86, 87	

STANDARDS		PAGE REFERENCES
<b>ASSESSMENT ANCHOR</b>		
<b>M7.E.2</b>	<b>Select and/or use appropriate statistical methods to analyze data.</b>	
<b>M7.E.2.1</b>	Describe, compare and/or contrast data using measures of mean, median, mode or range.	
<b>M7.E.2.1.1</b> Identify/calculate the mean (average), median, mode or range of a set of data.	<b>Student Edition:</b> 65-67, 69-72, 74, 83 #19, 93 #2, 95 #19, 97, 100 #6, #7, 141 #36, 237 #11, #12, 597 <i>Hands-on Lab 73</i> <i>The Game Zone 75</i> <b>Teacher's Guide:</b> A 68; B 69; DI 69; IE 70; PC 52F	
<b>M7.E.2.1.2</b> Decide/choose which measure of central tendency (mean, median, mode or range) would be most appropriate for a given situation.	<b>Student Edition:</b> 93 #5, #6, 94 #10, #11, #12, 95 #14, 597 #18	
<b>ASSESSMENT ANCHOR</b>		
<b>M7.E.3</b>	<b>Understand and/or apply basic concepts of probability or outcomes.</b>	
<b>M7.E.3.1</b>	Determine theoretical or experimental probability.	
<b>M7.E.3.1.1</b> Find the theoretical probability of a simple and/or compound event (answer written as a fraction in lowest terms – any compound events should be independent).	<b>Student Edition:</b> 370-373, 393-396, 398-401, 402, 404, 405, 407 #12, #15, #18, 604 <b>Teacher's Guide:</b> DI 371, 399; IE 371, 394	
<b>M7.E.3.1.2</b> Find the theoretical probability of an event <b>not</b> occurring (e.g., what is the probability of not rolling a 1 on a number cube).	<b>Student Edition:</b> 372 #26, 373 #28, #29 <i>Problem-Solving Strategy 391-392</i>	
<b>M7.E.3.1.3</b> Use data displayed in charts, graphs or tallies to find experimental probability.	<b>Student Edition:</b> 373 #27, 394 #2, 395 #10-#12, 400 #17-#18, 401 #27, 604	

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<b>ASSESSMENT ANCHOR</b>		
<b>M7.E.4</b>	<b>Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays.</b>	
<b>M7.E.4.1</b>	<b>Draw conclusions and/or make predictions based on data displays.</b>	
<b>M7.E.4.1.1</b>	Formulate predictions and/or draw conclusions based on data displays (bar graphs, circle graphs or line graphs) or probability.	<b>Student Edition:</b> 60-63, 86 #2, 93 #3, 94 #7, 101 #16, 319 (WHEN), 373 #27, 395 #10-#12, 396 #15-#17, 605 <i>Problem-Solving Strategy</i> 58-59, 133 #6-#8, 253 #12, 392 #6 <i>WebQuest</i> 3, 103, 193 <b>Teacher's Guide:</b> A 59; DI 59; PS 405