



IMPACT

Mathematics

COURSE 2

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STANDARDS	PAGE REFERENCES
Number, Number Sense and Operations Standard	
<i>Number and Number Systems</i>	
1. Demonstrate an understanding of place value using powers of 10 and write large numbers in scientific notation.	<p>Student Edition: 189, 190, 192 #59 <i>Dear Family</i> 173 <i>Investigation</i> 175-177, 178-181, 182-184 <i>Inquiry</i> 185-187 <i>Real-Life Math</i> 72, 172 <i>Review & Self Assessment</i> 207(6-13), 257 #6-#10 <i>Test Taking Practice</i> 209</p> <p>Teacher Guide: A 175, 181; DI 172E; I 72; In 178, 182</p>

STANDARDS	PAGE REFERENCES
2. Explain the meaning of exponents that are negative or 0.	Student Edition: 173, 192 #59, 194-197, 203-205 <i>Inquiry</i> 186 #10 <i>Investigation</i> 198-199 <i>Test Taking Practice</i> 209 Teacher Guide: I 194; MB 199; T 195, 197
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.	Student Edition: 320-323, 331-334, 341 #35 <i>Dear Family</i> 319 <i>Investigation</i> 336-338 Teacher Guide: DI 318E; I 320, 331; In 160
Meaning of Operations	
4. Use order of operations and properties to simplify numerical expressions involving integers, fractions and decimals.	Student Edition: 13, 37 #5c, 49-50 <i>Test Taking Practice</i> 171 #3 Teacher Guide: DU 14; I 49; T 51; TD 13, 30
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.	Student Edition: 148-150, 154-159, 160-161 <i>Investigation</i> 134-139, 140-142, 146-147 Teacher Guide: DU 155; In 134-135, 140-142, 146-147; MB 155
Computation and Estimation	
6. Simplify numerical expressions involving integers and use integers to solve real-life problems.	Student Edition: 22 #5, 70 #24, #25, 100 #28-#31, 105 #29-#31, 137 #9-#10, 154, 170 #21 <i>Investigation</i> 5, 60, 162-164 <i>Real Life Math</i> 124
7. Solve problems using the appropriate form of a rational number (fraction, decimal or percent).	Student Edition: 153 #79, 263, 325, 531-533 <i>Investigation</i> 38, 241 #1, 248 #8, 534-535

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<p>8. Develop and analyze algorithms for computing with percents and integers, and demonstrate fluency in their use.</p>	<p>Student Edition: 47 #18, 67 #40, 126, 153 #79, 156 #20, 239 #34, 253 #22, 293 #19, 311 #6, 537-538 <i>Inquiry</i> 185-187 <i>Investigation</i> 134-139, 160, 530-533, 534-536 <i>Real Life Math</i> 124 Teacher Guide: DI 124E; In 134, 534; MB 155; R 156, 530; TT 135</p>
<p>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).</p>	<p>Student Edition: 104 #11, 127, 151 #36, 174, 190 #35, 193 #60, 205 #73, 332, 339 #21-#25 <i>Inquiry</i> 185-187 <i>Investigation</i> 12-15, 111-112, 331-335 <i>Math Link</i> 151 <i>Real Life Math</i> 72, 172 Teacher Guide: SS 335</p>
<p>Measurement Standard</p>	
<p><i>Measurement Units</i></p>	
<p>1. Select appropriate units for measuring derived measurements; e.g., miles per hour, revolutions per minute.</p>	<p>Student Edition: 22 #6, 27 #32, 38, 251 #3, #4, 382 #2, 385 #8, 402 #1d, 540, 542 #6 <i>Share and Summarize</i> 250</p>
<p>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.</p>	<p>Student Edition: 382 #1, 385 #6, 386, 388 #15-#17 <i>Investigation</i> 234 #3, #4</p>

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<i>Use Measurement Techniques and Tools</i>	
<p>3. Estimate a measurement to a greater degree of precision than the tool provides.</p>	<p>Student Edition: 205 #73, 208 #31 <i>Inquiry</i> 185-187 <i>Share and Summarize</i> 184 <i>Think and Discuss</i> 246</p> <p>Teacher Guide: SS 184</p>
<p>4. Solve problems involving proportional relationships and scale factors; e.g., scale models that require unit conversions within the same measurement system.</p>	<p>Student Edition: 382-383, 511, 513, 523 #8 <i>Inquiry</i> 380-381 <i>Investigation</i> 377-379, 514-516 <i>Real Life Math</i> 492</p> <p>Teacher Guide: Inq 380</p>
<p>5. Analyze problem situations involving measurement concepts, select appropriate strategies, and use an organized approach to solve narrative and increasingly complex problems.</p>	<p>Student Edition: 7-8, 37 #6, 45 #11, 225 #12 <i>Real Life Math</i> 72, 124</p> <p>Teacher Guide: R 7</p>
<p>6. Use strategies to develop formulas for finding area of trapezoids and volume of cylinders and prisms.</p>	<p>Student Edition: 47 #17, 224 #11, 226 #17, 293 #20, 473 #45 <i>Inquiry</i> 220-222 <i>Investigation</i> 216-219</p> <p>Teacher Guide: DU 218; Q 227 #2</p>
<p>7. Develop strategies to find the area of composite shapes using the areas of triangles, parallelograms, circles and sectors.</p>	<p>With teacher instruction and adaptations the following references can be used to meet this objective.</p> <p>Student Edition: 37 #5, 223 #6, #7, 346 <i>Real Life Math</i> 210</p>

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.	Student Edition: 215 #10, 225 #12, 226 #14, #17, 237 #12, 409 #37, 473 #45 <i>Investigation</i> 213, 215
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.	Student Edition: 225 #12, 234 #5-#7, 237 #12, 239 #21, 409 #37 <i>Investigation</i> 215 Teacher Guide: Q 227
Geometry and Spatial Sense Standard	
<i>Characteristics and Properties</i>	
1. Use proportional reasoning to describe and express relationships between parts and attributes of similar and congruent figures.	The following references cover proportion and similarity. Student Edition: 505, 528 #26 <i>Dear Family</i> 493 <i>Investigation</i> 505-507, 517-518 <i>Real Life Math</i> 492 Teacher Guide: FL 493
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.	The following references cover 3-D objects. Student Edition: 212 Teacher Guide: DI 2E(OL); In 213; MB 210B; T 8
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.	Student Edition: 212, 343, 355-360, 526 #20 <i>Inquiry</i> 351-354 <i>Investigation</i> 343-346, 347-350 Teacher Guide: DI 318E(OL); MB 318B, 345; R 349

STANDARDS	PAGE REFERENCES
4. Determine necessary conditions for congruence of triangles.	With teacher assistance the following references can be used to meet this objective. Teacher Guide: DI 2E(OL); T 8
5. Apply properties of congruent or similar triangles to solve problems involving missing lengths and angle measures.	Similar triangles are used in the below references. Student Edition: 223 #7, 356 #6-#8, 506 #2, 554 #12 <i>Dear Family</i> 493 <i>Investigation</i> 348-350, 517-518 <i>Real Life Math</i> 492 <i>Review and Assessment</i> 363 #13 Teacher Guide: MB 2E(OL)
<i>Spatial Relationships</i>	
6. Determine and use scale factors for similar figures to solve problems using proportional reasoning.	Student Edition: 528 #25 <i>Dear Family</i> 493 <i>Investigation</i> 517-518 <i>Real Life Math</i> 492 Teacher Guide: DI 492E; FL 493
<i>Transformations and Symmetry</i>	
7. Identify the line and rotation symmetries of two-dimensional figures to solve problems.	With teacher assistance the following references can be used to meet this objective. Teacher Guide: DI 2E(OL); T 8
8. Perform translations, reflections, rotations and dilations of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper).	With teacher assistance the following references can be used to meet this objective. Teacher Guide: DI 2E(OL); T 8
<i>Visualization and Geometric Models</i>	
9. Draw representations of three-dimensional geometric objects from different views.	Student Edition: 228, 235-237, 257 #5 <i>Dear Family</i> 211 <i>Investigation</i> 229-233 <i>Real Life Math</i> 210 Teacher Guide: DI 210E; FL 211; I 210, 228; In 229

STANDARDS	PAGE REFERENCES
Patterns, Functions and Algebra Standard	
<i>Use Patterns, Relations and Functions</i>	
<p>1. Represent and analyze patterns, rules and functions with words, tables, graphs and simple variable expressions.</p>	<p>Student Edition: 4, 21 #3, 27 #31, 29 #37, 66 #29, 423-424, 427, 428 <i>Inquiry</i> 115 #8 <i>Investigation</i> 5-6, 159 #20, 411-413, 414-416, 417-419, 420-422 Teacher Guide: I 4, 410; In 5, 411, 420; MB 93</p>
<p>2. Generalize patterns by describing in words how to find the next term.</p>	<p>Student Edition: 4, 27 #31, 63 #4, 215 #10, 360 #15 <i>Investigation</i> 411-413, 414-416 Teacher Guide: I 4, 410; In 411, 414</p>
<p>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.</p>	<p>Student Edition: 371, 410, 423, 427 #16 <i>Investigation</i> 377-379, 411-413 <i>Real Life Math</i> 366 <i>Review and Self Assessment</i> 431 #2 Teacher Guide: MB 366B</p>
<i>Use Algebraic Representations</i>	
<p>4. Create visual representations of equation-solving processes that model the use of inverse operations.</p>	<p>Student Edition: 19-20, 152 #58-#60, 333, 446, 460 <i>Investigation</i> 437-439, 461, 464-465 <i>Review and Self Assessment</i> 69 #5 Teacher Guide: B 19; DU 19; In 437; SS 20; T 19, 20; TD 333</p>
<p>5. Represent linear equations by plotting points in the coordinate plane.</p>	<p>Student Edition: 415-416, 429, 432, 433 <i>Investigation</i> 417-419, 421 #3-#5 <i>Share and Summarize</i> 422 Teacher Guide: In 417</p>

STANDARDS	PAGE REFERENCES
6. Represent inequalities on a number line or a coordinate plane.	<p>Student Edition: 470 #25-#30 <i>Investigation</i> 466-468</p> <p>Teacher Guide: In 466</p>
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 $a \cdot 5 + 4 = 5a + 4$.	<p>Student Edition: 64 #22-#24, 68 #42-#44, 71 #26-#39 <i>Investigation</i> 51-52, 53-55, 60-61 <i>Review and Self Assessment</i> 69 #7-#10</p> <p>Teacher Guide: In 51, 53-54, 60</p>
8. Use formulas in problem-solving situations.	<p>Student Edition: 45, 47 #17, #18, 224 #11, 401 <i>Inquiry</i> 351-354 <i>Investigation</i> 7, 35-39, 347-350 <i>Review and Self Assessment</i> 69 #1</p> <p>Teacher Guide: In 35; R 349</p>
9. Recognize a variety of uses for variables; e.g., placeholder for an unknown quantity in an equation, generalization for a pattern, formula.	<p>Student Edition: 4, 30-31, 45, 445 #22, #23 <i>Dear Family</i> 3, 435 <i>Investigation</i> 5-8, 9-11, 32-34, 35, 159 #20 <i>Review and Self Assessment</i> 69 #1</p> <p>Teacher Guide: FL 3, 435; In 9, 32, 35; TT 401</p>

STANDARDS	PAGE REFERENCES
<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.	Student Edition: 410, 427 #15, 429 #20 <i>Investigation</i> 375 #16, 377-379, 398-401 <i>Review and Self Assessment</i> 431-432 Teacher Guide: In 377
11. Use graphing calculators or computers to analyze change; e.g., distance-time relationships.	With teacher assistance the following references can be used to meet this objective. Student Edition: 27 #31d, 44 #10
Data Analysis and Probability Standard	
<i>Data Collection</i>	
1. Read, create and interpret box-and-whisker plots, stem-and-leaf plots, and other types of graphs, when appropriate.	Student Edition: 294, 309-313 <i>Investigation</i> 295-298, 299-301, 302-305 Teacher Guide: In 295, 299, 302
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.	Student Edition: 119 #59, 292 #17, 309 #2, 311 #6 <i>Investigation</i> 299-301, 308 #11, 310 #4 Teacher Guide: In 299; SS 305 #2
<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.	Student Edition: 167 #50, #51, 170 #16-#20, 289 #11, 311 #5, 312 #8, 316 #15 <i>Investigation</i> 162-164, 302-305 <i>Math Link</i> 162 Teacher Guide: DI 124E; In 162
4. Construct opposing arguments based on analysis of the same data, using different graphical representations.	Student Edition: 292 #17, 294 <i>Investigation</i> 39 #8-#10, 297 #6-#11, 305 #7, 308 #11 <i>Share and Summarize</i> 305, 308 Teacher Guide: SS 305

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5. Compare data from two or more samples to determine how sample selection can influence results.	Student Edition: 286-290 <i>Dear Family</i> 261 <i>Investigation</i> 279-282, 283-285 <i>Real Life Math</i> 260 Teacher Guide: FL 261; In 279, 280, 283; T 285
6. Identify misuses of statistical data in articles, advertisements, and other media.	Student Edition: 310 #3 <i>Investigation</i> 306-308 Teacher Guide: In 306; T 306
<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.	Student Edition: 272-276 <i>Investigation</i> 262-263, 264-267, 268-269 <i>Review and Self Assessment</i> 315 #3 Teacher Guide: I 262; In 262, 264; R 265
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.	Student Edition: 272-276, 278, 287 #5, 288, 289 #11, 291 #14 <i>Inquiry</i> 270-271 <i>Investigation</i> , 279-282 <i>Real Life Math</i> 260 Teacher Guide: DI 260E; WU 269