



# IMPACT MATHEMATICS

## Algebra and More

**Course 1**  
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STANDARDS		PAGE REFERENCES
<b>Numbers, Number Sense, and Computation</b>		
<b>Content Standard 1.0:</b> <i>To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will accurately calculate, use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions.</i>		
By the end of <b>Grade 6</b> , students know and are able to do everything required in the previous grades and:		
1.6.1 Read, write, add, subtract, multiply, and divide using decimals, fractions, and percents.	I/S	<b>Student Edition:</b> 113-117, 154-157, 157-160, 161-163, 172-175, 175-177, 178-181, 182-185, 185-188, 198-201, 201-203, 207-210, 210-212, 227-230, 234-236, 236-239  <i>On Your Own Exercises</i> 166-170, 189-197, 213-219 <i>Review and Self-Assessment</i> 221-223 <b>Teacher's Guide:</b> T116, T207
1.6.2 Apply decimals, fractions, and percents to solve mathematical and practical problems.	E/S	<b>Student Edition:</b> 113-117, 117-119, 161-163, 172-175, 198-201, 226, 229-230, 234-236, 236-239  <i>On Your Own Exercises</i> 123-126, 189-197, 240-246 <b>Teacher's Guide:</b> T162, T173, T174, T235, T236, T239

STANDARDS		PAGE REFERENCES
1.6.3 Use the concepts of <b>number theory</b> , including <b>prime</b> and <b>composite numbers</b> , factors, <b>multiples</b> , and the rules of divisibility.	I/S	<b>Student Edition:</b> 77-79, 79-81, 82-84, 85-87 <i>Remember</i> 78, 616 <i>Lab Investigation</i> 88-89 <i>On Your Own Exercises</i> 90-95, 247 #48-#50, 493 #15-#20 <b>Teacher's Guide:</b> T83, T84, T85, T87
1.6.6 Compare and order groups of fractions and groups of decimals (e.g., on a number line).	I/S	<b>Student Edition:</b> 99-101, 102-103, 120-122, 128-131, 131-134 <i>On Your Own Exercises</i> 124 #24-#26 <b>Teacher's Guide:</b> T101, T103, T105, T111, T114, T122, T130, T131, T134
1.6.7 Round to a given decimal place value; estimate using decimals, fractions, and percents.	E/S	<b>Student Edition:</b> 104-105, 128-131, 226-230, 234-236, 236-239 <b>Teacher's Guide:</b> T104, T105, T131
1.6.9 Use models and drawings to identify, compare, add, and subtract fractions with unlike denominators; use models to translate among fractions, decimals, and percents.	I/S	<b>Student Edition:</b> 99-101, 128-131, 131-134, 134-136, 157-160, 161-163, 236-239 <i>On Your Own Exercises</i> 166-170 <b>Teacher's Guide:</b> T159, T160, T161, T162
<b>Patterns, Functions, and Algebra</b>		
<b>Content Standard 2.0:</b> <i>To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations.</i>		
2.6.1 Use and create tables and charts to extend a <b>pattern</b> in order to describe a rule.	E/S	<b>Student Edition:</b> 15-18, 28-31, 32-35, 410-413 <i>On Your Own Exercises</i> 23-26 #1-#3, #15, #18-#21, #36-#41 <b>Teacher's Guide:</b> T15, T16, T17, T18, T28, T31, T32-T35

STANDARDS		PAGE REFERENCES
2.6.2 Identify, model, describe, and evaluate relationships using charts and tables, with and without technology.	I/S	<b>Student Edition:</b> 28-31, 32-35, 410-413, 414-418, 419-421 <i>On Your Own Exercises</i> 36-41, 422-429 <b>Teacher's Guide:</b> T16, T17, T30, T32, T410, T412
2.6.7 Use a rule to create a table and represent the ordered pairs on a <b>coordinate grid</b> .	I/S	<b>Student Edition:</b> 302-305, 306-310 <i>On Your Own Exercises</i> 311-312, 619 #31 <b>Teacher's Guide:</b> T302, T303
<b>Measurement</b>		
<b>Content Standard 3.0:</b> <i>To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements.</i>		
3.6.1 Estimate and convert, units of measure for length, weight, and <b>capacity</b> , within the same measurement system (customary or metric).	E/S	<b>Student Edition:</b> 17-18, 117-119 <i>On Your Own Exercises</i> 111 #52-#55, 123 #12-#21, 141 #54-#57 <b>Teacher's Guide:</b> T117, T118, T119
3.6.2 Explain how the size of the unit used affects the <b>precision</b> ; given two measurements of the same object, select the one that is more precise.	E/S	<b>Student Edition:</b> 306-310, 467-471 <b>Teacher's Guide:</b> T309, T310, T468
3.6.3 Estimate, measure to the required degree of accuracy, derive, and apply formulas to find the perimeter, circumference, and <b>area</b> of <b>plane figures</b> .	E/S	<b>Student Edition:</b> 482-486, 486-489, 494-498, 498-501, 504-507, 514-517, 518-521 <i>On Your Own Exercises</i> 490-493, 508-512 <b>Teacher's Guide:</b> T483, T484, T485, T487, T488, T497, T516, T518
3.6.5 Use ratios to describe and compare relationships between various objects.	I/S	The concept of ratio and proportion is used on the following pages: <b>Student Edition:</b> 100-102, 124-126, 195, 199, 205-206

STANDARDS		PAGE REFERENCES
<b>Spatial Relationships and Geometry</b>		
<b>Content Standard 4.0:</b> <i>To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will identify, represent, explain, verify, and apply spatial relationships and geometric properties.</i>		
4.6.1 Measure angles; identify, describe by properties, classify, compare, and draw regular and irregular quadrilaterals; find the sum of the interior angles of triangles and quadrilaterals.	E/S	<b>Student Edition:</b> 42-46, 46-49, 50-54, 54-57, 467-471, 472-476 <i>On Your Own Exercises</i> 61-68 <b>Teacher's Guide:</b> T48, T49, T57, T469
4.6.2 Determine actual measurements represented on scale drawings (e.g., maps, blueprints, houseplans).	I/S	<b>Student Edition:</b> 152
4.6.3 Using a coordinate grid, identify coordinates for a given point and locate points of given coordinates; plot geometric shapes in all four quadrants.	I/S	<b>Student Edition:</b> 302-305, 306-310 <i>On Your Own Exercises</i> 311-312, 619 #31 <b>Teacher's Guide:</b> T302, T303
4.6.4 Make a model of a three-dimensional <b>prism</b> from a <b>two-dimensional</b> drawing and make a two-dimensional drawing of a three-dimensional prism.	I/L	<b>Student Edition:</b> 42-46, 46-49, 50-53, 54-57, 466-471, 472-476, 515-517 <i>Lab Investigation</i> 58-60 <i>On Your Own Exercises</i> 61-68
4.6.5 Model <b>slope</b> (pitch, <b>angle of inclination</b> ) using concrete objects and practical examples.	I/L	Once the definition of <i>angle of inclination</i> is given, the following page references can be used to meet this standard. See Glencoe's <i>Impact Mathematics: Algebra and More Course 3</i> © 2005 <b>Student Edition:</b> 31, 667-670
4.6.6 Draw <b>complementary</b> and <b>supplementary angles</b> ; identify and find measures of complementary and supplementary angles using arithmetic and geometric methods.	I/S	<b>Student Edition:</b> 472-476 <i>On Your Own Exercises</i> 477 #5, #6, #15 <b>Teacher's Guide:</b> T469

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4.6.7 Determine the measures of missing angles of triangles based on the <b>Triangle Sum Theorem</b> (the sum of the interior angles of a triangle equals 180 degrees).	I/L	<b>Student Edition:</b> 48, 54-57 <i>On Your Own Exercises</i> 64 #21-#26, 361 #20-#22 <b>Teacher's Guide:</b> T48, T57
4.6.8 Construct circles, angles, and triangles based on given measurements using a variety of methods (e.g., protractor, paper folding).	W/L	<b>Student Edition:</b> 467-471, 477-480, 486-489, 495-497 <i>Lab Investigation</i> 58-60 <i>Explore</i> 494 <i>On Your Own Exercises</i> 513 #69-#72 <b>Teacher's Guide:</b> T494
<b>Data Analysis</b>		
<b>Content Standard 5.0:</b> <i>To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections.</i>		
5.6.1 Interpret data using various formats including circle graphs.	I/S	<b>Student Edition:</b> 230-233, 317-318, 319-320, 320-323, 343-345 <i>Lab Investigation</i> 324-326 <b>Teacher's Guide:</b> T231, T318, T320
5.6.2 Conduct simple probability experiments using concrete materials and represent the results using decimals, percents, and ratios.	I/L	<b>Student Edition:</b> 605-607, 608-612, 621-622, 623-624, 624-625, 626-630 <i>Lab Investigation</i> 613-614 <i>On Your Own Exercises</i> 615-618, 631-636 <b>Teacher's Guide:</b> T606, T607, T609, T621, T625
5.6.3 Solve probability problems using a variety of methods including constructing sample spaces and tree diagrams.	E/S	<b>Student Edition:</b> 605-607, 608-612, 621-622, 623-624, 624-625, 626-630, 639-642, 643-645 <i>Share and Summarize</i> 607 <i>Lab Investigation</i> 613-614 <i>On Your Own Exercises</i> 615-618, 631-636, 646-650 <b>Teacher's Guide:</b> T639, T640, T642, T643, T644

STANDARDS		PAGE REFERENCES
5.6.5 Analyze the effect a change of format will have on interpretation of statistical charts and graphs.	I/L	<b>Student Edition:</b> 343-345, 346-349 <i>On Your Own Exercises</i> 353-360 <b>Teacher's Guide:</b> T345, T346, T349
5.6.6 Analyze data in a variety of formats to draw conclusions and make predictions	E/S	<b>Student Edition:</b> 230-233, 278-282, 282-286, 286-291, 346-349, 350-352, 362-365, 366-369 <i>On Your Own Exercises</i> 353-360, 380-388 <b>Teacher's Guide:</b> T278, T279, T280, T281, T282, T346-T349, T350-352
<b>Problem Solving</b>		
<b>Process Standard 6.0:</b> <i>Students will develop their ability to solve problems by engaging in developmentally appropriate problem-solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts in order to: formulate their own problems; find solutions to problems from everyday situations; develop and apply strategies to solve a wide variety of problems; and integrate mathematical reasoning, communication and connections.</i>		
6.1 Select, modify, develop, and apply strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts. S 1.2.3; S 1.5.1; S 1.8.1; S 1.8.4; S 1.12.2; S 1.12.4; S 2.12.1; S 3.2.3; S 10.5.2; S 14.8.6; S 19.12.2; S 21.3.1	E/S	<b>Student Edition:</b> 571-573, 574-576, 576-578, 586-589, 589-591 <i>Lab Investigation</i> 268-269 <b>Teacher's Guide:</b> T587, T588, T591
6.2 Apply previous experience and knowledge to new problem-solving situations.	E/S	<b>Student Edition:</b> 316-318, 319-320, 343-345, 346-349 <i>Lab Investigation</i> 268-269, 525-527
6.5 Verify, interpret, and evaluate results with respect to the original problem situation, determining an efficient <b>strategy</b> for the given situation. S 21.5.3; S 21.12.3	E/S	<b>Student Edition:</b> 391-393, 394-395 <i>Share and Summarize</i> 320 <i>Lab Investigation</i> 396-397, 433-435 <i>On Your Own Exercises</i> 594-597 <b>Teacher's Guide:</b> T320

STANDARDS		PAGE REFERENCES
6.6 Try more than one strategy when the first strategy proves to be unproductive. S 19.12.2	E/L	<b>Student Edition:</b> 200, 201-203, 466-471 <i>Share and Summarize</i> 291, 486, 498, 630 <i>On Your Own Exercises</i> 292-299, 423 #5B <i>Lab Investigation</i> 324-326, 396-398
6.7 Apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or until it is clear that no solution exists. S 19.12.2	E/S	<b>Student Edition:</b> 592-593, 600 #9-#10 <i>Lab Investigation</i> 433-435 <b>Teacher's Guide:</b> T592
6.9 Generalize solutions and strategies from earlier problems to new problem situations.	E/L	<b>Student Edition:</b> 316-318, 319-320, 343-345, 346-349 <i>Lab Investigation</i> 268-269, 525-527
6.10 Interpret and solve a variety of mathematical problems by paraphrasing, identifying necessary and extraneous information, selecting and justifying efficient methods and/or strategies, and ensuring the answer is reasonable.	E/S	<b>Student Edition:</b> 560-562, 576-578, 579-584, 586-591 <i>Lab Investigation</i> 563-564 <b>Teacher's Guide:</b> T561, T562, T577, T588
6.13 Use technology, including calculators, to solve problems and verify solutions. S 24.5.5; S 24.8.5	E/L	<b>Student Edition:</b> 20, 201-203, 631 #3 <i>Lab Investigation</i> 164-165, 324-326, 396-398, 525-527
6.14 Use technology, including calculators, to investigate, define, and describe quantitative relationships such as patterns and functions. G 7.12.3; S 1.5.1; S 1.12.2; S 1.12.4; S 14.8.6; S 24.5.5; S 24.8.5	E/L	<b>Student Edition:</b> <i>Lab Investigation</i> 324-326, 396-398, 525-527

STANDARDS		PAGE REFERENCES
<b>Mathematical Communication</b>		
<b>Process Standard 7.0:</b> <i>Students will develop their ability to communicate mathematically by solving problems in which there is a need to obtain information from the real world through reading, listening, and observing in order to: translate this information into a mathematical language and symbols; process this information mathematically; and present results in written, oral and visual formats.</i>		
7.1 Discuss and exchange ideas about mathematics as a part of learning. E 10.2.3; E 10.3.3; E 10.5.3; E 10.3.1; E 10.5.1; E 10.12.1; S 23.5.2	E/L	<b>Student Edition:</b> 230-233 <i>Share and Summarize</i> 236, 345, 349 <b>Teacher's Guide:</b> T230, T233
7.2 Use inquiry techniques (e.g., discussion, questioning, research, data gathering) to solve mathematical problems. E 4.2.3; E 10.2.2; E 10.3.2; E 10.5.2; E 10.8.2; E 11.2.1; E 11.3.1; E 11.5.1; E 11.8.1; E 11.12.1; E 11.2.2; S 1.5.1; S 1.8.1; S 1.8.4; S 1.12.4; S 10.5.2; S 14.8.6; S 21.3.1	E/L	<b>Student Edition:</b> 343-345, 592-593 <i>On Your Own Exercises</i> 594-597 <b>Teacher's Guide:</b> T343, T345, T592
7.3 Read expository text to learn about mathematics. E 1.8.3; E 1.12.3; E 2.12.3; E 4.8.1; E 4.8.2; E 4.8.3	I/L	<b>Student Edition:</b> 29, 162, 377 <i>Example</i> 33, 34, 159, 161 <i>Explore</i> 142
7.6 Interpret and solve word problems without the necessity of key words or phrases.	E/S	<b>Student Edition:</b> 278-282, 343-345, 346-347, 430-432, 436-439 <i>Lab Investigation</i> 433-435 <b>Teacher's Guide:</b> T279, T280, T344, T345, T346, T431, T435
7.8 Use physical material, <b>diagrams</b> , and tables to represent and then communicate mathematical ideas through oral, verbal, and written formats. E 11.5.5; G 1.5.4; G 7.5.3; G 7.5.5; H 1.5.1; S 1.5.1; S 20.5.1; S 22.5.2; S 23.5.2	E/S	<b>Student Edition:</b> 377-379, 390-393, 394-395 <i>On Your Own Exercises</i> 380-388, 399-401 <b>Teacher's Guide:</b> T379, T393, T395

STANDARDS		PAGE REFERENCES
7.10 Evaluate the effectiveness of written and oral presentations of mathematics. S 21.5.3; S 23.5.2	I/L	<b>Student Edition:</b> 316-318, 434-435, 419-421, 571-573, 575-578, 586-591, 592-593, 594-597
7.11 Make conjectures and present arguments in discussions of mathematical ideas. S 21.5.3; S 23.5.3	E/L	<b>Student Edition:</b> 320-323, 377-379 <i>Lab Investigation</i> 396-397 <i>On Your Own Exercises</i> 399-401
7.13 Explain and evaluate thinking about mathematical ideas and solutions. E 10.8.2; E 10.12.4; S 21.5.3	I/L	<b>Student Edition:</b> 278-282, 282-291, 327-334 <i>Share and Summarize</i> 291 <i>Lab Investigation</i> 324-326 <b>Teacher's Guide:</b> T279, T280, T281
7.15 Use everyday language to explain thinking about strategies and solutions to mathematical problems. S 21.5.3; S 23.5.3	E/L	<b>Student Edition:</b> 143-145, 370-372 <i>On Your Own Exercises</i> 123-126, 327-334, 565-569 <i>Explore</i> 142, 182 <i>Think and Discuss</i> 162 <b>Teacher's Guide:</b> T142, T182
7.16 Express mathematical ideas and use them to define, compare, and solve problems orally and in writing.	E/S	<b>Student Edition:</b> 316-318, 419-421, 434-435, 571-573, 575-578, 586-591, 592-593, 594-597
7.17 Use mathematical notation to communicate and explain mathematical situations. S 21.2.1	E/L	<b>Student Edition:</b> 230-233, 252-255, 261-264, 278-282, 286-291 <i>Share and Summarize</i> 236, 345, 349 <i>On Your Own Exercises</i> 292-299

STANDARDS		PAGE REFERENCES
<b>Mathematical Reasoning</b>		
<b>Process Standard 8.0:</b> <i>Students will develop their ability to reason mathematically by solving problems in which there is a need to investigate significant mathematical ideas and construct their own learning in all content areas in order to justify their thinking; reinforce and extend their logical reasoning abilities; reflect on and clarify their own thinking; and ask questions to extend their thinking.</i>		
8.2 Justify answers and the steps taken to solve problems, with and without manipulatives and physical models. S 1.5.1; S 10.5.2; S 20.5.1	E/S	<b>Student Edition:</b> 14-18, 410-414, 414-418 <i>On Your Own Exercises</i> 23-27, 422-429
8.4 Use patterns and relationships to analyze mathematical situations; draw logical conclusions about mathematical problems. Ec 3.8.2; Ec 3.8.3; Ec 9.8.4; Ec 3.12.1; Ec 3.12.2; Ec 3.12.3; Ec 3.12.4; Ec 6.12.6; G 7.12.4; S 17.3.2	E/S	<b>Student Edition:</b> 4-9, 14-18, 28-31, 32-35, 42-45, 134-136, 410-413, 414-418, 419-421 <i>On Your Own Exercises</i> 422-429
8.5 Follow a logical argument and judge its validity. E 4.8.4; E 4.12.4	E/L	<b>Student Edition:</b> 14-18, 410-414, 414-418 <i>On Your Own Exercises</i> 23-27, 422-429
8.7 Recognize and apply deductive and inductive reasoning in both concrete and abstract contexts.	E/S	<b>Student Edition:</b> 104-105, 128-131, 320-323, 504-507 <i>Lab Investigation</i> 324-326 <i>Share and Summarize</i> 439, 630 #3B <b>Teacher's Guide:</b> T439
8.8 Ask questions to reflect on, clarify, and extend thinking.	E/L	<b>Student Edition:</b> 343-345, 592-593 <i>On Your Own Exercises</i> 594-597
8.9 Review and refine the assumptions and steps used to derive conclusions in mathematical arguments.	I/L	<b>Student Edition:</b> 592-593, 600 #9-#10 <i>Lab Investigation</i> 433-435

STANDARDS		PAGE REFERENCES
<b>Mathematical Connections</b>		
<b>Process Standard 9.0:</b> <i>Students will develop the ability to make mathematical connections by solving problems in which there is a need to view mathematics as an integrated whole, identifying relationships between context strands, and integrating mathematics with other disciplines, allowing the flexibility to approach problems in a variety of ways within and beyond the field of mathematics.</i>		
9.1 Link new concepts to prior knowledge.	E/L	<b>Student Edition:</b> 316-318, 319-320, 343-345, 346-349 <i>Lab Investigation</i> 268-269, 525-527
9.2 Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics.	E/S	<b>Student Edition:</b> <i>Share and Summarize</i> 291, 486, 498, 630 <i>On Your Own Exercises</i> 292-299, 423 #5B <i>Lab Investigation</i> 525-526 <b>Teacher's Guide:</b> T291, T486, T498, T630
9.3 Use models to explain the relationship of concepts to procedures. S 1.5.1; S 1.8.1; S 1.12.2; S 1.8.4; S 1.12.4; S 10.5.2; S 14.8.6; S 20.5.1	E/S	<b>Student Edition:</b> 143-145, 370-372 <i>Explore</i> 142, 182 <i>Think and Discuss</i> 162 <b>Teacher's Guide:</b> T142, T144, T162, T182
9.4 Use the connections among mathematical topics to develop multiple approaches to problems. S 20.8.1	I/L	<b>Student Edition:</b> 390-393, 394-395, 419-421, 436-438, 450-454 <i>Think and Discuss</i> 173 <i>Lab Investigation</i> 433-435
9.5 Identify practical applications of mathematical principles that can be applied to other disciplines. S 14.12.5	I/L	<b>Student Edition:</b> 2-3, 5-9 <i>On Your Own Exercises</i> 123-126, 327-334, 565-569 <b>Teacher's Guide:</b> T2, T5, T8, T9
9.7 Apply mathematical thinking and modeling to solve problems that arise in other disciplines (e.g., rhythm in music and motion in science). S 1.5.1; S 1.8.1; S 1.12.2; S 1.8.4; S 1.12.4; S 10.5.2; S 14.8.6; S 19.12.2	E/L	<b>Student Edition:</b> 346-349 <i>On Your Own Exercises</i> 213-219, 327-334, 569 #32 <b>Teacher's Guide:</b> T346-T349

STANDARDS	PAGE REFERENCES
<p>9.8 Identify, explain, and use mathematics in everyday life. Ec 2.3.2; Ec 2.12.12; Ec 5.2.1; Ec 5.3.1; S 24.12.2</p>	<p>I/S</p> <p><b>Student Edition:</b> 121, 153 <i>Think and Discuss</i> 210, 226 <i>On Your Own Exercises</i> 241-246, 327-334, 380-388 <i>Explore</i> 342 <i>Lab Investigation</i> 563-564</p> <p><b>Teacher's Guide:</b> T121</p>