



IMPACT MATHEMATICS

Algebra and More

Course 1

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STANDARDS		PAGE REFERENCES
Standard 1: Number and Operation		
Students in Grade 6 read, write, compare, and order whole numbers, fractions, and decimals. Students explain the use of fractions and decimals and their interrelationship. Students add, subtract, multiply, and divide whole numbers and decimals and students add and subtract fractions with unlike denominators and simplify as necessary. Students estimate to predict computation results.		
Goal 1.1: Understand and use numbers.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.1.1.1	Compare magnitudes and relative magnitudes of positive rational numbers, including whole numbers through billions, fractions, and decimals. (317.01.a, 317.01.d)	Student Edition: 99-101, 102-103, 120-122, 128-131, 131-134 <i>On Your Own Exercises</i> 124 #24-26 Teacher's Guide: T101, T103, T105, T111, T114, T122, T130, T131, T134
6.M.1.1.2	Explain the interrelationship of fractions, decimals, and percents. (317.01.b)	Student Edition: 236-239 <i>On Your Own Exercises</i> 243-246 <i>Lab Investigation</i> 268-269 Teacher's Guide: T237, T238, 247

STANDARDS		PAGE REFERENCES
6.M.1.1.3	Locate the position of integers on a number line.	Student Edition: 142-145 <i>On Your Own Exercises</i> 146-147 <i>Review and Self-Assessment</i> 150-151 Teacher's Guide: T143, T144, T145
6.M.1.1.4	Convert between decimals and fractions. (317.01.b)	Student Edition: 128-131, 131-134, 134-136 <i>On Your Own Exercises</i> 137-140 <i>Review and Self-Assessment</i> 149, 151 #42-49 Teacher's Guide: T131, T133-T136
6.M.1.1.5	Apply number theory concepts (prime, composite, prime factorization) and identify common factors and common multiples. (317.01.e)	Student Edition: 82-84, 85-87, 100-101, 102-103 <i>Lab Investigation</i> 88-89 <i>On Your Own Exercises</i> 90-95, 247 #48-50, 493 #15-20 <i>Review and Self-Assessment</i> 148 Teacher's Guide: T83, T84, T85, T87
6.M.1.1.6	Solve problems using the 4-step process of problem solving (explore, plan, solve, and examine). (318.01.b)	Student Edition: <i>Explore</i> 82, 112, 142 <i>Lab Investigation</i> 88-89, 433-435 Teacher's Guide: T130
6.M.1.1.7	Describe the use of integers in real-world situations. (317.01.f)	Student Edition: 142-145 <i>On Your Own Exercises</i> 146-147 <i>Review and Self-Assessment</i> 150-151 Teacher's Guide: T143, T144, T145
6.M.1.1.8	Use appropriate vocabulary.	Student Edition: 75, 128-131, 131-134, 134-136, 142-145 Teacher's Guide: T128, T133, T134, T143

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Goal 1.2: Perform computations accurately.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.1.2.1	Recall basic multiplication and division facts from 12 x 12 Times Table. (317.02.d)	See Glencoe's <i>Mathematics: Applications and Concepts Course 1</i> © 2006 Student Edition: 37 #50-53, 99 #13-14, 124 #51 <i>Hands-on Mini-Lab</i> 10
6.M.1.2.2	Add, subtract, multiply, and divide whole numbers, decimals, and simple fractions (including unlike denominators). (317.02.a, 317.02.b, 317.02.c, 317.02.g)	Student Edition: 15-18, 19-22, 154-157, 157-160, 161-163, 172-174, 175-177, 178-181, 182-185, 185-188, 198-201, 201-203, 204-206, 207-209, 210-212 <i>On Your Own Exercises</i> 25-26, 27 #23-28, 166-170, 189-197, 213-219 <i>Lab Investigation</i> 164-165
6.M.1.2.3	Evaluate numerical expressions with whole numbers using the order of operations (excluding exponents). (317.02.e)	Student Edition: 19-22 <i>On Your Own Exercises</i> 24-27, 41 #25-27 Teacher's Guide: T19-T22
6.M.1.2.4	Select and use an appropriate method of computation from mental math, paper and pencil, calculator or a combination of the three. (317.02.h)	Student Edition: 20, 104-105, 200 #1-7, 204-206, 507 <i>Lab Investigation</i> 164-165, 324-326, 525-527 <i>Explore</i> 514 Teacher's Guide: T20, T200, T204, T205, T206
6.M.1.2.5	Use a variety of strategies to solve real life problems. (318.01.a)	Student Edition: 87, 98, 130, 309 <i>Explore</i> 161 Teacher's Guide: T87, T98, T100, T129-T130, T161, 309
6.M.1.2.6	Use appropriate vocabulary and notations. (317.02.i)	Student Edition: 153 <i>Share and Summarize</i> 160, 163, 181 <i>Think and Discuss</i> 162, 173, 175, 179 <i>Remember</i> 175 <i>Explore</i> 182 Teacher's Guide: T175, T179

STANDARDS		PAGE REFERENCES
Goal 1.3: Estimate and judge reasonableness of results.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.1.3.1	Estimate to predict computation results. (317.03.a)	Student Edition: 104-105, 128-131, 178-181, 200 <i>On Your Own Exercises</i> 107, 110-111 Teacher's Guide: T105, T130-T131, T181
6.M.1.3.2	Explain when estimation is appropriate. (317.03.b)	Student Edition: 104-105, 128-131, 205, 233 <i>On Your Own Exercises</i> 215-216 #25-28 Teacher's Guide: T105, T181, 205, T205
6.M.1.3.3	Identify whether a given estimate is an overestimate or underestimate. (317.03.c)	Student Edition: 203, 206, 208 <i>Lab Investigation</i> 164-165 Teacher's Guide: 203, 206, T206, 208, T208
6.M.1.3.4	Use a four-function calculator to solve complex grade-level problems.	Student Edition: 20, 200, 201-203, 498, 507, 631 #3 <i>Lab Investigation</i> 164-165 Teacher's Guide: T498
6.M.1.3.5	Formulate conjectures and discuss why they must be or seem to be true. (318.02.c)	Student Edition: 320-323, 377-379, 487 <i>Lab Investigation</i> 396-397 <i>On Your Own Exercises</i> 399-401 Teacher's Guide: T320, T378, T487, 487
6.M.1.3.6	Use appropriate vocabulary. (317.03.d)	Student Edition: 104-105, 128-131 Teacher's Guide: T104, T105, T179

STANDARDS		PAGE REFERENCES
Standard 2: Concepts and Principles of Measurement		
Students in Grade 6 select and use appropriate units and tools to make formal measurements in both systems. Students use given formulas for perimeter and area of triangles, circles, and parallelograms, and for circumference and area of circles. Students solve problems involving perimeter and area of rectangles. Students convert unit of measurement within each system in one-step problems.		
Goal 2.1: Understand and use U.S. customary and metric measurements.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.2.1.1	Select and use appropriate units and tools to make formal measurements in both systems. (319.01.a)	Student Edition: 17-18, 117-119, 467, 470-471 <i>On Your Own Exercises</i> 111 #52-55, 123 #12-21, 141 #54-57 Teacher's Guide: T117, T118, T119, T467, T471
6.M.2.1.2	Apply estimation of measurement to real-world and content problems using standard measuring devices. (319.01.b)	Student Edition: 209, 466, 484-485 Teacher's Guide: T485
6.M.2.1.3	Apply understanding of relationships to solve real-world problems related to elapsed time. (319.01.f)	Student Edition: 16 #1, #3, 429 #21, 582 #19, 583 #22
6.M.2.1.4	Given the formulas, find the perimeter or circumference and area of triangles, circles and parallelograms (all kinds). (319.01.c, 321.01.e)	Student Edition: 482-486, 486-489, 494-498, 499-501, 504-507, 514-517, 518-521, 522-524 <i>On Your Own Exercises</i> 490-493, 508-512 Teacher's Guide: T483, T484, T485, T487, T488, T497, T516, T518
6.M.2.1.5	Convert units of measurement within each system in one-step problems (e.g., quarts to gallons and gallons to quarts). (319.01.e)	Student Edition: 117-119 <i>On Your Own Exercises</i> 123 #12-15 <i>Review and Self-Assessment</i> 151 #36-38 <i>Think and Discuss</i> 210 Teacher's Guide: T117-T119

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6.M.2.1.6	Solve problems involving perimeter and area of rectangles. (321.01.d)	Student Edition: 175-176, 178, 264 #7, 482-486, 494-498, 498-501 <i>On Your Own Exercises</i> 13 #21 Teacher's Guide: T175, T176, T178, T482, T484
6.M.2.1.7	Use appropriate vocabulary and notations. (319.01.g)	Student Edition: 465, 482-486, 494-498 Teacher's Guide: T482-T486, T494-T498
Goal 2.2: Apply the concepts of rates, ratios, and proportions.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.2.2.1	Identify and write ratios and scales (on a map). (319.03.a)	Student Edition: 152, 211-212 <i>Think and Discuss</i> 210 <i>On Your Own Exercises</i> 215 #27
Goal 2.3: Apply dimensional analysis.		
No objectives at this grade level.		
Standard 3: Concepts and Language of Algebra and Functions		
Students in Grade 6 read and use symbols of "<," ">," and "=" to express relationships. Students evaluate simple algebraic expressions using substitution. Students extend simple patterns and state a rule that generates the pattern using whole numbers, decimals, fractions as inputs, and students use patterns and functions to represent and solve simple problems.		
Goal 3.1: Use algebraic symbolism as a tool to represent mathematical relationships.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.3.1.1	Discuss the meaning and use of variables in simple expressions and equations. (320.01.a)	Student Edition: 410, 431-432, 560-562 Teacher's Guide: T560-T562
6.M.3.1.2	Translate simple word statements into algebraic equations. (320.01.b)	Student Edition: 436-439, 439-442, 451-454, 455-456 <i>Lab Investigation</i> 433-435 <i>On Your Own Exercises</i> 443-445, 457-459 Teacher's Guide: T436-T439, T442, T453

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6.M.3.1.3	Read and use symbols of “<,” “>,” and “=” to express relationships. (320.01.c)	Student Edition: 559-562 <i>On Your Own Exercises</i> 565 #4-9, 589 #26-31 Teacher’s Guide: T559, T561
Goal 3.2: Evaluate algebraic expressions.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.3.2.1	Use the following properties in evaluating numerical expressions: commutative, associative, identity, zero, inverse, and distributive. (320.02.a)	Student Edition: 452 <i>Think and Discuss</i> 561 Teacher’s Guide: T77, T100, T452, T561
6.M.3.2.2	Evaluate simple algebraic expressions using substitution.	Student Edition: 411-414, 414-418, 419-421 <i>On Your Own Exercises</i> 422-429 Teacher’s Guide: T414, T421
Goal 3.3: Solve algebraic equations and inequalities.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.3.3.1	Solve one-step equations with whole numbers. (320.03.a)	Student Edition: 558-560, 560-562, 571-573, 574-576, 576-578 <i>Lab Investigation</i> 563-564, 579-583 <i>On Your Own Exercises</i> 565-569 Teacher’s Guide: T559-T560, T561-T562, T571-T573, T574-T576
Goal 3.4: Understand the concept of functions.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.3.4.1	Extend simple patterns and state a rule (function) that generates the pattern using whole numbers, decimals, and fractions as inputs. (323.01.a)	Student Edition: 411-414, 414-418, 419-421, 430-432, 436-439, 439-442 <i>On Your Own Exercises</i> 422-429, 443-448 Teacher’s Guide: T414, T421, T436, T439

STANDARDS		PAGE REFERENCES
6.M.3.4.2	Describe and extend patterns by using manipulatives and pictorial representations. (323.01.b)	Student Edition: 411-414, 414-418 <i>On Your Own Exercises</i> 422-428 <i>Lab Investigation</i> 433-435 Teacher's Guide: T414, T418, T433
6.M.3.4.3	Use mathematical models to show change in a real-world context. (323.01.c)	Student Edition: 430-432, 436-439, 439-442 <i>Lab Investigation</i> 433-435 <i>On Your Own Exercises</i> 443-448 Teacher's Guide: T430, T431, T432, T436-T439, T442
6.M.3.4.4	Use appropriate vocabulary. (323.01.d)	Student Edition: 409, 420, 431-432 <i>Explore</i> 410, 430 <i>Share and Summarize</i> 414, 418, 421 <i>Think and Discuss</i> 419 Teacher's Guide: T419
Goal 3.5: Represent equations, inequalities and functions in a variety of formats.		
No objectives at this grade level.		
Goal 3.6: Apply functions to a variety of problems.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.3.6.1	Use patterns to represent and solve simple problems.	Student Edition: 4-9, 14-18, 28-31, 32-35, 42-45, 134-136, 410-414, 414-418, 419-421 <i>On Your Own Exercises</i> 36-41, 422-429 Teacher's Guide: T30, T34

STANDARDS		PAGE REFERENCES
Standard 4: Concepts and Principles of Geometry		
Students in Grade 6 describe and classify relationships among types of one-, two- and three-dimensional geometric figures using their defining properties. Students identify congruence, similarities, and symmetry of shapes and students identify and plot points in the first quadrant on a coordinate plane.		
Goal 4.1: Apply concepts of size, shape, and spatial relationships.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.4.1.1	Describe relationships among types of one- and two-dimensional geometric figures, using their defining properties. (321.01.a)	Student Edition: 42-46, 46-49, 50-54, 54-57 <i>On Your Own Exercises</i> 61-68 Teacher's Guide: T42-T46, T46-T49, T50-T54, T54-T57
6.M.4.1.2	Draw and measure various angles and shapes using appropriate tools. (321.01.b)	Student Edition: 46-49, 467-471, 472-476 <i>On Your Own Exercises</i> 477-480 Teacher's Guide: T48, T467-T471, T472-T476
6.M.4.1.3	Apply fundamental concepts, properties, and relationships among points, lines, rays, and angles. (321.01.c)	Student Edition: 466, 467-471, 472-476 <i>On Your Own Exercises</i> 477-480 Teacher's Guide: T466, T467-T471, T472-T476
6.M.4.1.4	Describe reflections, translations, and rotations on various shapes. (321.01.g)	Student Edition: 50-51, 62 #9, 492 #11
6.M.4.1.5	Identify congruence, similarities, and line symmetry of shapes. (321.01.d)	Student Edition: 50-51 Teacher's Guide: T50
6.M.4.1.6	Discuss the spatial relationship between two- and three-dimensional objects. (321.01.f)	Student Edition: <i>Lab Investigation</i> 58-60 <i>On Your Own Exercises</i> 534 #24
6.M.4.1.7	Use appropriate vocabulary and symbols. (323.01.h)	Student Edition: 3, 43-49, 50-54, 465, 467-471, 474 <i>Share and Summarize</i> 57 <i>Think and Discuss</i> 466 Teacher's Guide: T469

STANDARDS		PAGE REFERENCES
Goal 4.2: Apply the geometry of right triangles.		
No objectives at this grade level.		
Goal 4.3: Apply graphing in two dimensions.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.4.3.1	Identify and plot points in the first quadrant on a coordinate plane. (321.02.a)	Student Edition: 302-305, 306-310 <i>On Your Own Exercises</i> 311-312, 619 #31 Teacher's Guide: T302, T303
Standard 5: Data Analysis, Probability, and Statistics		
Students in Grade 6 read and interpret tables, charts and graphs, including line graphs, bar graphs, frequency line or line plot, and circle graph. Students collect, organize, and display the data with appropriate notation in tables, charts, and graphs, including line graphs, bar graphs, and frequency line or line plot. Students find measures of central tendency – mean, median, and mode – with simple sets of data and students calculate the range of a set of data. Students predict, perform, and record results of simple probability experiments.		
Goal 5.1: Understand data analysis.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.5.1.1	Read and interpret tables, charts, and graphs, including broken line graphs, bar graphs, frequency tables, line plots, and circle graphs. (322.01.a)	Student Edition: 230-233, 317-318, 319-320, 320-323, 343-345, 346-349 <i>Lab Investigation</i> 324-326 Teacher's Guide: T231, T318, T320
6.M.5.1.2	Explain and justify stated conclusions drawn from tables, charts, and graphs. (322.01.b)	Student Edition: 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 Teacher's Guide: T278, T279, T280, T281, T282, T350-T352, T346-T349
6.M.5.1.3	Use appropriate vocabulary and notations. (322.01.c)	Student Edition: 341, 343-345, 346-349, 362-365 Teacher's Guide: T343-T345, T348, T364

STANDARDS		PAGE REFERENCES
Goal 5.2: Collect, organize, and display data.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.5.2.1	Collect, organize, and display the data with appropriate notation in tables, charts, and graphs, including broken line graphs, bar graphs, frequency tables and line plots. (322.02.a)	Student Edition: 230-233, 278-282, 282-286, 286-291, 317-318, 319-320, 320-323, 343-345, 346-349, 350-352, 362-365, 366-369 <i>Lab Investigation</i> 324-326 <i>On Your Own Exercises</i> 353-360, 380-388 Teacher's Guide: T278, T279, T280, T281, T282, T318, T320, T350-T352, T346-T349
Goal 5.3: Apply simple statistical measurements.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.5.3.1	Find measures of central tendency – mean, median, and mode – with simple sets of data. (322.03.a)	Student Edition: 363-365, 370-372, 373-376, 394-395 <i>On Your Own Exercises</i> 380-388 <i>Lab Investigation</i> 396-398 Teacher's Guide: T370-T372, T373-T376, T394-T395
6.M.5.3.2	Calculate the range of a set of data. (322.03.b)	Student Edition: 363-365, 366-369, 372, 379 <i>On Your Own Exercises</i> 380-388 Teacher's Guide: T363-T365, T366-T369
Goal 5.4: Understand basic concepts of probability.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.5.4.1	Predict, perform, and record results of simple probability experiments. (322.04.a)	Student Edition: 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 Teacher's Guide: T605-T607, T608-T612, 619

STANDARDS		PAGE REFERENCES
6.M.5.4.2	Use the language of probability. (322.04.b)	Student Edition: 603, 604, 605-607, 608-612 <i>Lab Investigation</i> 613-614 <i>On Your Own Exercises</i> 615-618, 631-636 <i>Share and Summarize</i> 630 <i>Think and Discuss</i> 638
Goal 5.5: Make predictions or decisions based on data.		
Objective(s): By the end of Grade 6, the student will be able to:		
6.M.5.5.1	Make predictions based on data. (318.01.c)	Student Edition: 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 Teacher's Guide: T278, T279, T280, T281, T282, T350-T352, T346-T349