



Impact Mathematics

Course 1

STANDARDS	PAGE REFERENCES
<p>Grade 6</p> <p>NOTE: IF PAGE REFERENCES ARE NOT GIVEN, IT SHOULD BE ASSUMED THAT THE CONTENT APPEARS THROUGHOUT THE LESSON DESIGNATED</p>	
<p>Number Sense and Operations</p> <p><i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i></p>	
<p>6.N.1 Demonstrate an understanding of positive integer exponents, in particular, when used in powers of ten, e.g., 10^2, 10^5.</p>	<p>Student Edition: Lesson 2.1, p. 81; Lesson 2.3, p. 115 (Just the Facts)</p>
<p>6.N.2 Demonstrate an understanding of place value to billions and thousandths.</p>	<p>Student Edition: Lesson 2.3, pp. 113-116</p>
<p>6.N.3 Represent and compare very large (billions) and very small (thousandths) positive numbers in various forms such as expanded notation without exponents, e.g., $9724 = 9 \times 1000 + 7 \times 100 + 2 \times 10 + 4$.</p>	<p>Student Edition: Lesson 2.3, pp. 113-127</p>
<p>6.N.4 Demonstrate an understanding of fractions as a ratio of whole numbers, as parts of unit wholes, as parts of a collection, and as locations on the number line.</p>	<p>Student Edition: Lesson 2.2, pp. 96-111</p>
<p>6.N.5 Identify and determine common equivalent fractions, mixed numbers, decimals, and percents.</p>	<p>Student Edition: Lesson 2.2, pp. 99-103; Lesson 2.4, pp. 128-140; Lesson 4.1, pp. 236-239</p>
<p>6.N.6 Find and position integers, fractions, mixed numbers, and decimals (both positive and negative) on the number line.</p>	<p>Student Edition: Lesson 2.2, pp. 96, 98, 106; Lesson 2.4, pp. 128-130, 137, 139, Lesson 2.5, pp. 143-146</p>

<p>6.N.7 Compare and order integers (including negative integers), and positive fractions, mixed numbers, decimals, and percents.</p>	<p>Student Edition: Lesson 2.2, pp. 102-107; Lesson 2.3, pp. 120-122; Lesson 2.4, pp. 128-131; Lesson 4.1, p. 238</p>
<p>6.N.8 Apply number theory concepts—including prime and composite numbers, prime factorization, greatest common factor, least common multiple, and divisibility rules for 2, 3, 4, 5, 6, 9, and 10—to the solution of problems.</p>	<p>Student Edition: Lesson 2.1, pp. 76-87 (number theory concepts) Lesson 2.1, p. 78, <i>Remember</i> (divisibility rules) Quick Review Math Handbook: Book 1, p. 82 (divisibility rules)</p>
<p>6.N.9 Select and use appropriate operations to solve problems involving addition, subtraction, multiplication, division, and positive integer exponents with whole numbers, and with positive fractions, mixed numbers, decimals, and percents. ●</p>	<p>Student Edition: Lessons 1.2, 1.3, 1.4, 2.5, 3.3, 4.1, 4.2, 4.3, 8.3, 8.4, 8.5, 9.1, 9.2, 9.3, 10.1, 10.2, 10.3</p>
<p>6.N.10 Use the number line to model addition and subtraction of integers, with the exception of subtracting negative integers. ●</p>	<p>Quick Review Math Handbook: Book 1, pp. 88-89</p>
<p>6.N.11 Apply the Order of Operations for expressions involving addition, subtraction, multiplication, and division with grouping symbols (+, −, ×, ÷). ●</p>	<p>Student Edition: Lesson 1.2, pp. 19-22; Lesson 7.1, p. 412; Lesson 8.3, pp. 501-503</p>
<p>6.N.12 Demonstrate an understanding of the inverse relationship of addition and subtraction, and use that understanding to simplify computation and solve problems. ●</p>	<p>Student Edition: Lesson 9.2, pp. 570-578</p>
<p>6.N.13 Accurately and efficiently add, subtract, multiply, and divide (with double-digit divisors) whole numbers and positive decimals. ▲</p>	<p>Student Edition: Lesson 3.3, pp. 198-211</p>
<p>6.N.14 Accurately and efficiently add, subtract, multiply, and divide positive fractions and mixed numbers. Simplify fractions. ▲</p>	<p>Student Edition: Lesson 2.2, pp. 99-101; Lesson 3.1, pp. 154-163; Lesson 3.2, pp. 172-188</p>

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6.N.15 Add and subtract integers, with the exception of subtracting negative integers. ▲	Quick Review Math Handbook: Book 1, pp. 88-89
6.N.16 Estimate results of computations with whole numbers, and with positive fractions, mixed numbers, decimals, and percents. Describe reasonableness of estimates. ▲	Student Edition: Lesson 2.2, pp. 104-105; Lesson 3.2, p. 179; Lesson 4.3, p. 262, p. 266
Patterns, Relations, and Algebra <i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i>	
6.P.1 Analyze and determine the rules for extending symbolic, arithmetic, and geometric patterns and progressions, e.g., ABCC; 1, 5, 9, 13 ...; 3, 9, 27, +	Student Edition: Lessons 1.1, 1.2, 1.3, 1.4
6.P.2 Replace variables with given values and evaluate/simplify, e.g., $2(\bigcirc) + 3$ when $\bigcirc = 4$. ●	Student Edition: Lesson 1.3, pp. 28-31; Lesson 5.2, p. 308; Lesson 7.1, pp. 410-418; Lesson 7.2, pp. 430-432, pp. 436-442.
6.P.3 Use the properties of equality to solve problems, e.g., if $\square + 7 = 13$, then $\square = 13 - 7$, therefore $\square = 6$; if $3 \times \square = 15$, then $\frac{1}{3} \times 3 \times \square = \frac{1}{3} \times 15$, therefore $\square = 5$. ●	Student Edition: Lesson 9.1, pp. 560-562; Lesson 9.2, pp. 570-576
6.P.4 Represent real situations and mathematical relationships with concrete models, tables, graphs, and rules in words and with symbols, e.g., input-output tables. ▲	Student Edition: Lesson 1.3, pp. 32-35; Lesson 7.1., pp. 410-421; Lesson 7.2, pp. 430-442; Lesson 9.2, pp. 576-578

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6.P.5	Solve linear equations using concrete models, tables, graphs, and paper-pencil methods. ▲	Student Edition: Lesson 9.2, pp. 570-578
6.P.6	Produce and interpret graphs that represent the relationship between two variables in everyday situations. ▲	Student Edition: Lesson 5.1, pp. 278-291; Lesson 5.2, pp. 301-305; Lesson 5.3, pp. 317-323
6.P.7	Identify and describe relationships between two variables with a constant rate of change. Contrast these with relationships where the rate of change is not constant. ■	Student Edition: Lesson 5.1, pp. 286-291; Lesson 5.2, pp. 300-305
<p>Geometry <i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i></p>		
6.G.1	Identify polygons based on their properties, including types of interior angles, perpendicular or parallel sides, and congruence of sides, e.g., squares, rectangles, rhombuses, parallelograms, trapezoids, and isosceles, equilateral, and right triangles.	Student Edition: Lesson 1.4, pp. 42-54. Quick Review Math Handbook: Book 1, pp. 300-308
6.G.2	Identify three-dimensional shapes (e.g., cubes, prisms, spheres, cones, and pyramids) based on their properties, such as edges and faces.	Student Edition: Lesson 1.4, Lab Investigation, pp. 58-60 Quick Review Math Handbook: Book 1, pp. 310-311

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<p>6.G.3 Identify relationships among points, lines, and planes, e.g., intersecting, parallel, perpendicular. ●</p>	<p>Student Edition: Lesson 8.1, p. 469 (perpendicular); pp. 472-473 (intersecting); Lesson 8.4, p. 532 <i>Remember</i> (parallel)</p>
<p>6.G.4 Graph points and identify coordinates of points on the Cartesian coordinate plane (all four quadrants). ●</p>	<p>Student Edition: Lesson 5.2, pp. 300-310 (first quadrant only) Quick Review Math Handbook: Book 1, pp. 282-284 (all four quadrants)</p>
<p>6.G.5 Find the distance between two points on horizontal or vertical number lines. ●</p>	<p>Student Edition: Lesson 2.5, pp. 142-145 (horizontal)</p>
<p>6.G.6 Predict, describe, and perform transformations on two-dimensional shapes, e.g., translations, rotations, and reflections. ▲</p>	<p>Quick Review Math Handbook: Book 1, pp. 314-318</p>
<p>6.G.7 Identify types of symmetry, including line and rotational. ▲</p>	<p>Student Edition: Lesson 1.4, pp. 50-54 (line symmetry) Quick Review Math Handbook: Book 1, p. 316 (rotation; rotation symmetry is not explicitly covered)</p>
<p>6.G.8 Determine if two shapes are congruent by measuring sides or a combination of sides and angles, as necessary; or by motions or series of motions, e.g., translations, rotations, and reflections. ▲</p>	<p>This standard is covered in Course 2, Chapter 7.</p>
<p>6.G.9 Match three-dimensional objects and their two-dimensional representations, e.g., nets, projections, and perspective drawings. ■</p>	<p>This standard is covered in Course 2, Chapter 2.</p>

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<p>Measurement</p> <p><i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i></p>		
6.M.1	Apply the concepts of perimeter and area to the solution of problems. Apply formulas where appropriate. ●	<p>Student Edition: Lesson 8.2, pp. 482-489; Lesson 8.3, pp. 494-501; Lesson 8.4, pp. 514-524</p>
6.M.2	Identify, measure, describe, classify, and construct various angles, triangles, and quadrilaterals. ●	<p>Student Edition: Lesson 1.4, pp. 42-57; Lesson 8.1, pp. 466-476; Lesson 8.2, pp. 482-489</p>
6.M.3	Solve problems involving proportional relationships and units of measurement, e.g., same system unit conversions, scale models, maps, and speed. ●	<p>Student Edition: Lesson 2.3, pp. 117-119 (metric conversions)</p> <p>Quick Review Math Handbook: Book 1, pp. 352-358 (metric conversions)</p> <p>Skills Intervention for Middle School Mathematics: pp. 117-124 (customary units of measure)</p> <p><i>Scale models, maps and speed are covered in Course 2.</i></p>
6.M.4	Find areas of triangles and parallelograms. Recognize that shapes with the same number of sides but different appearances can have the same area. Develop strategies to find the area of more complex shapes. ●	<p>Student Edition: Lesson 8.4, pp. 514-521</p>
6.M.5	Identify, measure, and describe circles and the relationships of the radius, diameter, circumference, and area (e.g., $d = 2r$, $\pi = C/d$), and use the concepts to solve problems. ●	<p>Student Edition: Lesson 8.2, pp. 486-489; Lesson 8.4, pp. 514-524</p>

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6.M.6 Find volumes and surface areas of rectangular prisms. ●	Quick Review Math Handbook: Book 1, p. 330, pp. 334-335
6.M.7 Find the sum of the angles in simple polygons (up to eight sides) with and without measuring the angles. ●	Student Edition: Lesson 8.1, pp. 473-476
Data Analysis, Statistics, and Probability <i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i>	
6.D.1 Describe and compare data sets using the concepts of median, mean, mode, maximum and minimum, and range. ●	Student Edition: Lesson 6.2, pp. 362-379
6.D.2 Construct and interpret stem-and-leaf plots, line plots, and circle graphs. ●	Student Edition: Lesson 6.1, pp. 342-361; Lesson 6.2, pp. 362-369
6.D.3 Use tree diagrams and other models (e.g., lists and tables) to represent possible or actual outcomes of trials. Analyze the outcomes. ■	Student Edition: Lesson 10.3, pp. 638-645
6.D.4 Predict the probability of outcomes of simple experiments (e.g., tossing a coin, rolling a die) and test the predictions. Use appropriate ratios between 0 and 1 to represent the probability of the outcome and associate the probability with the likelihood of the event. ■	Student Edition: Lesson 10.1, pp. 604-612; Lesson 10.2, pp. 620-630