

**New Jersey Core Curriculum Content Standards  
for Mathematics, Grade 6, Correlated to  
Glencoe Mathematics: Applications and Concepts, Course 1**

Lessons in which the Cumulative Progress Indicators are a primary focus are indicated in **bold**.

Strands and Cumulative Progress Indicators	Student Edition Lesson(s)
<b>STANDARD 4.1: NUMBER AND NUMERICAL OPERATIONS</b>	
<b>A. Number Sense</b>	
<b>4.1.6A1</b> Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 6 pertain to these sets of numbers as well). • All integers • All fractions as part of a whole, as subset of a set, as a location on a number line, and as divisions of whole numbers • All decimals	<b>3-1a, 3-1</b> , 5-2, 5-3, 5-7, <b>8-1</b>
<b>4.1.6A2</b> Recognize the decimal nature of United States currency and compute with money.	<b>3-1</b> , 3-2, 3-3, 3-4, 3-5, 3-5b, 4-1, 4-2, 4-3, 4-4b, 4-6b, 5-4a, 7-6a, 8-5a, 9-1, 9-5, 9-5b, 9-6, 9-7, 10-1, 10-7, 10-8a, 10-8, 11-5a, 12-4b, 14-5a
<b>4.1.6A3</b> Demonstrate a sense of the relative magnitudes of numbers.	<b>4-1</b>
<b>4.1.6A4</b> Explore the use of ratios and proportions in a variety of situations.	<b>10-1</b> , 10-1b, <b>10-2</b> , 10-3, 11-1
<b>4.1.6A5</b> Understand and use whole-number percents between 1 and 100 in a variety of situations.	<b>10-4</b> , <b>10-5</b> , <b>10-7a</b> , 10-8a, <b>10-8</b>
<b>4.1.6A6</b> Use whole numbers, fractions, and decimals to represent equivalent forms of the same number.	<b>5-6</b> , <b>5-7</b>
<b>4.1.6A7</b> Develop and apply number theory concepts in problem solving situations. • Primes, factors, multiples • Common multiples, common factors	<b>1-3</b> , <b>5-1</b> , <b>5-4</b>
<b>4.1.6A8</b> Compare and order numbers.	<b>3-2</b> , <b>5-5</b> , <b>8-1</b> , 10-6, <b>PS2</b>
<b>B. Numerical Operations</b>	
<b>4.1.6B1</b> Recognize the appropriate use of each arithmetic operation in problem situations.	covered throughout the text
<b>4.1.6B2</b> Construct, use, and explain procedures for performing calculations with fractions and decimals with: • Pencil-and-paper • Mental math • Calculator	3-4, <b>3-5</b> , 3-5b, 4-1a, <b>4-1</b> , 4-2a, <b>4-2</b> , <b>4-3</b> , 4-4a, <b>4-4</b> , 4-4b, 5-7, 6-2, 6-2b, <b>6-3</b> , 6-4a, <b>6-4</b> , <b>6-5</b> , <b>6-6</b> , 7-1, 7-2a, <b>7-2</b> , 7-3, 7-4a, <b>7-4</b> , <b>7-5</b> , 7-6a, 7-6
<b>4.1.6B3</b> Use an efficient and accurate pencil-and-paper procedure for division of a 3-digit number by a 2-digit number.	<b>4-3</b> , <b>4-4</b> , <b>PS4</b>
<b>4.1.6B4</b> Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.	covered throughout the text
<b>4.1.6B5</b> Find squares and cubes of whole numbers.	<b>1-4</b>
<b>4.1.6B6</b> Check the reasonableness of results of computations.	<b>4-4b</b>

PS = Prerequisite Skill Appendix (pp. 586–593)

Strands and Cumulative Progress Indicators		Student Edition Lesson(s)
<b>4.1.6B7</b>	Understand and use the various relationships among operations and properties of operations.	<b>9-1</b> , 9-2, 9-3
<b>4.1.6B8</b>	Understand and apply the standard algebraic order of operations for the four basic operations, including appropriate use of parentheses.	<b>1-5</b> , 1-6, 3-5
<b>C. Estimation</b>		
<b>4.1.6C1</b>	Use a variety of strategies for estimating both quantities and the results of computations.	<b>3-4</b> , <b>6-2</b> , <b>7-1</b> , <b>10-8</b> , PS6
<b>4.1.6C2</b>	Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.	4-4b, 6-2, 6-2b, 7-1
<b>4.1.6C3</b>	Determine the reasonableness of an answer by estimating the result of operations.	1-1, 1-7, <b>3-5</b> , 3-5b, 4-1, 4-2, 4-3, 4-4, <b>4-4b</b> , 6-2b, 6-3, 6-5, 6-6, 7-2, 7-3, 7-5, 12-4, 12-6
<b>4.1.6C4</b>	Determine whether a given estimate is an overestimate or an underestimate.	6-2, 6-2b
<b>STANDARD 4.2: GEOMETRY AND MEASUREMENT</b>		
<b>A. Geometric Properties</b>		
<b>4.2.6A1</b>	Understand and apply concepts involving lines and angles. <ul style="list-style-type: none"> <li>• Notation for line, ray, angle, line segment</li> <li>• Properties of parallel, perpendicular, and intersecting lines</li> <li>• Sum of the measures of the interior angles of a triangle is <math>180^\circ</math></li> </ul>	<b>13-1</b> , <b>13-3a</b> , <b>13-3</b> , 13-4, 13-4b, 14-1
<b>4.2.6A2</b>	Identify, describe, compare, and classify polygons and circles. <ul style="list-style-type: none"> <li>• Triangles by angles and sides</li> <li>• Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi</li> <li>• Polygons by number of sides.</li> <li>• Equilateral, equiangular, regular</li> <li>• All points equidistant from a given point form a circle</li> </ul>	4-6, <b>13-4</b> , <b>13-4b</b>
<b>4.2.6A3</b>	Identify similar figures.	<b>13-6</b>
<b>4.2.6A4</b>	Understand and apply the concepts of congruence and symmetry (line and rotational).	<b>13-5</b> , <b>13-6</b>
<b>4.2.6A5</b>	Compare properties of cylinders, prisms, cones, pyramids, and spheres.	<b>14-4</b>
<b>4.2.6A6</b>	Identify, describe, and draw the faces or shadows (projections) of three-dimensional geometric objects from different perspectives.	<b>14-4b</b> , 14-6a, 14-6
<b>4.2.6A7</b>	Identify a three-dimensional shape with given projections (top, front and side views).	covered in Course 2 and Course 3
<b>4.2.6A8</b>	Identify a three-dimensional shape with a given net (i.e., a flat pattern that folds into a 3D shape).	<b>14-6a</b> , 14-6
<b>B. Transforming Shapes</b>		
<b>4.2.6B1</b>	Use a translation, a reflection, or a rotation to map one figure onto another congruent figure.	<b>13-5b</b>
<b>4.2.6B2</b>	Recognize, identify, and describe geometric relationships and properties as they exist in nature, art, and other real-world settings.	13-4, 13-5, 13-6

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Strands and Cumulative Progress Indicators		Student Edition Lesson(s)
<b>C. Coordinate Geometry</b>		
<b>4.2.6C1</b>	Create geometric shapes with specified properties in the first quadrant on a coordinate grid.	13-5b
<b>D. Units of Measurement</b>		
<b>4.2.6D1</b>	Select and use appropriate units to measure angles, area, surface area, and volume.	<b>13-1, 13-2, 13-3, 13-4, 14-1, 14-2a, 14-2, 14-2b, 14-3, 14-5, 14-6</b>
<b>4.2.6D2</b>	Use a scale to find a distance on a map or a length on a scale drawing.	<b>10-3, 10-3b</b>
<b>4.2.6D3</b>	Convert measurement units within a system (e.g., 3 feet = ___ inches).	<b>12-1, 12-2, 12-5</b>
<b>4.2.6D4</b>	Know approximate equivalents between the standard and metric systems (e.g., one kilometer is approximately $\frac{6}{10}$ of a mile).	12-3, 12-4
<b>4.2.6D5</b>	Use measurements and estimates to describe and compare phenomena.	12-3, 12-5
<b>E. Measuring Geometric Objects</b>		
<b>4.2.6E1</b>	Use a protractor to measure angles.	<b>13-1, 13-2</b>
<b>4.2.6E2</b>	Develop and apply strategies and formulas for finding perimeter and area. <ul style="list-style-type: none"> <li>Triangle, square, rectangle, parallelogram, and trapezoid</li> <li>Circumference and area of a circle</li> </ul>	<b>4-5, 4-6, 12-1a, 14-1, 14-2a, 14-2, 14-2b, 14-3</b>
<b>4.2.6E3</b>	Develop and apply strategies and formulas for finding the surface area and volume of rectangular prisms and cylinders.	<b>14-5, 14-6</b>
<b>4.2.6E4</b>	Recognize that shapes with the same perimeter do not necessarily have the same area and vice versa.	<b>12-1a</b>
<b>4.2.6E5</b>	Develop informal ways of approximating the measures of familiar objects (e.g., use a grid to approximate the area of the bottom of one's foot).	12-1, 12-4, 12-5, 14-1, 14-2a, 14-2b, 14-3, 14-5, 14-6
<b>STANDARD 4.3: PATTERNS AND ALGEBRA</b>		
<b>A. Patterns</b>		
<b>4.3.6A1</b>	Recognize, describe, extend, and create patterns involving whole numbers and rational numbers. <ul style="list-style-type: none"> <li>Descriptions using tables, verbal rules, simple equations, and graphs</li> <li>Formal iterative formulas (e.g., NEXT = NOW * 3)</li> <li>Recursive patterns, including Pascal's Triangle (where each entry is the sum of the entries above it) and the Fibonacci Sequence: 1, 1, 2, 3, 5, 8, . . . (where NEXT = NOW + PREVIOUS)</li> </ul>	1-1, <b>7-6, 7-6a, 9-6a, 9-6, 9-7</b>
<b>B. Functions and Relationships</b>		
<b>4.3.6B1</b>	Describe the general behavior of functions given by formulas or verbal rules (e.g., graph to determine whether increasing or decreasing, linear or not).	8-6, <b>9-6, 9-7</b>
<b>C. Modeling</b>		
<b>4.3.6C1</b>	Use patterns, relations, and linear functions to model situations. <ul style="list-style-type: none"> <li>Using variables to represent unknown quantities</li> <li>Using concrete materials, tables, graphs, verbal rules, algebraic expressions/equations/inequalities</li> </ul>	<b>1-6, 1-7, 1-8, 4-2, 4-5, 4-6, 6-4, 6-5, 7-2, 7-3, 7-4, 7-5, 8-3, 8-4, 8-5, 9-2a, 9-2, 9-3a, 9-3, 9-4, 9-4b, 9-5, 9-5b, 9-6a, 9-6, 9-7, 10-2, 10-3, 10-5, 11-3, 11-4, 14-1, 14-2a, 14-2, 14-2b, 14-3, 14-5, 14-6</b>

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Strands and Cumulative Progress Indicators		Student Edition Lesson(s)
<b>4.3.6C2</b>	Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events. <ul style="list-style-type: none"> <li>• Changes over time</li> <li>• Relations between quantities</li> <li>• Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly)</li> </ul>	<b>2-2, 2-4, 9-7</b>
<b>D. Procedures</b>		
<b>4.3.6D1</b>	Solve simple linear equations with manipulatives and informally. <ul style="list-style-type: none"> <li>• Whole-number coefficients only, answers also whole numbers</li> <li>• Variables on one or both sides of equation</li> </ul>	<b>1-7, 9-2a, 9-2, 9-3a, 9-3, 9-4, 9-4b, 9-5</b>
<b>4.3.6D2</b>	Understand and apply the properties of operations and numbers. <ul style="list-style-type: none"> <li>• Distributive property</li> <li>• The product of a number and its reciprocal is 1</li> </ul>	<b>7-4, 9-1a, 9-1</b>
<b>4.3.6D3</b>	Evaluate numerical expressions.	<b>1-5, 1-6</b>
<b>4.3.6D4</b>	Extend understanding and use of inequality. <ul style="list-style-type: none"> <li>• Symbols (<math>\geq</math>, <math>\neq</math>, <math>\leq</math>)</li> </ul>	<b>1-7, 3-2, 5-5, 8-1, 9-4b</b>
<b>STANDARD 4.4: DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS</b>		
<b>A. Data Analysis</b>		
<b>4.4.6A1</b>	Collect, generate, organize, and display data. <ul style="list-style-type: none"> <li>• Data generated from surveys</li> </ul>	<b>2-1, 2-2, 2-2b, 2-3, 2-5, 2-7b, 14-3b</b>
<b>4.4.6A2</b>	Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data. <ul style="list-style-type: none"> <li>• Bar graph, line graph, circle graph, table, histogram</li> <li>• Range, median, and mean</li> <li>• Calculators and computers used to record and process information</li> </ul>	<b>2-1, 2-2a, 2-2, 2-2b, 2-3, 2-4, 2-8, 2-6, 2-6b, 2-7, 2-7b, 6-1, 14-3b</b>
<b>4.4.6A3</b>	Respond to questions about data, generate their own questions and hypotheses, and formulate strategies for answering their questions and testing their hypotheses.	<b>2-1, 2-2a, 2-2, 2-2b, 2-3, 2-4, 2-5, 2-6, 2-6b, 2-7, 2-7b, 2-8, 6-1, 14-3b</b>
<b>B. Probability</b>		
<b>4.4.6B1</b>	Determine probabilities of events. <ul style="list-style-type: none"> <li>• Event, complementary event, probability of an event</li> <li>• Multiplication rule for probabilities</li> <li>• Probability of certain event is 1 and of impossible event is 0</li> <li>• Probabilities of event and complementary event add up to 1</li> </ul>	<b>11-1, 11-3, 11-4, 11-5a, 11-5</b>
<b>4.4.6B2</b>	Determine probability using intuitive, experimental, and theoretical methods (e.g., using model of picking items of different colors from a bag). <ul style="list-style-type: none"> <li>• Given numbers of various types of items in a bag, what is the probability that an item of one type will be picked</li> <li>• Given data obtained experimentally, what is the likely distribution of items in the bag</li> </ul>	<b>11-1a, 11-1, 11-1b</b>
<b>4.4.6B3</b>	Explore compound events.	<b>11-5</b>
<b>4.4.6B4</b>	Model situations involving probability using simulations (with spinners, dice) and theoretical models.	<b>11-1a, 11-1b</b>
<b>4.4.6B5</b>	Recognize and understand the connections among the concepts of independent outcomes, picking at random, and fairness.	<b>11-3a, 11-3, 11-5</b>

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Strands and Cumulative Progress Indicators		Student Edition Lesson(s)
<b>C. Discrete Mathematics—Systematic Listing and Counting</b>		
<b>4.4.6C1</b>	Solve counting problems and justify that all possibilities have been enumerated without duplication. <ul style="list-style-type: none"> <li>Organized lists, charts, tree diagrams, tables</li> <li>Venn diagrams</li> </ul>	Study Skill (p. 176), 5-1, <b>11-2</b>
<b>4.4.6C2</b>	Apply the multiplication principle of counting. <ul style="list-style-type: none"> <li>Simple situations (e.g., you can make <math>3 \times 4 = 12</math> outfits using 3 shirts and 4 skirts).</li> <li>Number of ways a specified number of items can be arranged in order (concept of permutation)</li> <li>Number of ways of selecting a slate of officers from a class (e.g., if there are 23 students and 3 officers, the number is <math>23 \times 22 \times 21</math>)</li> </ul>	11-2
<b>4.4.6C3</b>	List the possible combinations of two elements chosen from a given set (e.g., forming a committee of two from a group of 12 students, finding how many handshakes there will be among ten people if everyone shakes each other person's hand once).	11-2
<b>D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms</b>		
<b>4.4.6D1</b>	Devise strategies for winning simple games (e.g., start with two piles of objects, each of two players in turn removes any number of objects from a single pile, and the person to take the last group of objects wins) and express those strategies as sets of directions.	11-4
<b>4.4.6D2</b>	Analyze vertex-edge graphs and tree diagrams. <ul style="list-style-type: none"> <li>Can a picture or a vertex-edge graph be drawn with a single line? (degree of vertex)</li> <li>Can you get from any vertex to any other vertex? (connectedness)</li> </ul>	beyond the scope of this course
<b>4.4.6D3</b>	Use vertex-edge graphs to find solutions to practical problems. <ul style="list-style-type: none"> <li>Delivery route that stops at specified sites but involves least travel</li> <li>Shortest route from one site on a map to another</li> </ul>	beyond the scope of this course
<b>STANDARD 4.4.5: MATHEMATICAL PROCESSES</b>		
<b>A. Problem Solving</b>		
<b>4.5.6A1</b>	Learn mathematics through problem solving, inquiry, and discovery.	covered throughout the text
<b>4.5.6A2</b>	Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> <li>Open-ended problems</li> <li>Non-routine problems</li> <li>Problems with multiple solutions</li> <li>Problems that can be solved in several ways</li> </ul>	covered throughout the text
<b>4.5.6A3</b>	Select and apply a variety of appropriate problem-solving strategies (e.g., “try a simpler problem” or “make a diagram”) to solve problems.	1-7a, 2-2a, 3-5b, 4-4b, 5-4a, 6-2b, 7-6a, 8-5a, 9-5b, 10-8a, 11-5a, 12-4b, 13-4a, 14-5a
<b>4.5.6A4</b>	Pose problems of various types and levels of difficulty.	1-2, 2-5, 3-4, 3-5, 4-1, 5-6, 5-7, 7-4, 8-2, 8-4, 9-3, 12-2, 14-5, 14-6

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Strands and Cumulative Progress Indicators		Student Edition Lesson(s)
<b>4.5.6A5</b>	Monitor their progress and reflect on the process of their problem solving activity.	3-1a, 3-1b, 4-1a, 4-2a, 4-4a, 5-2a, 6-1a, 6-4a, 7-2a, 7-4a, 8-2a, 9-1a, 9-2a, 9-3a, 9-4b, 9-6a, 10-1b, 10-3b, 10-7a, 11-1a, 11-1b, 11-3a, 12-1a, 12-3a, 12-3b, 13-3a, 13-4b, 13-5b, 13-6b, 14-2a, 14-2b, 14-3b, 14-4b, 14-6a
<b>B. Communication</b>		
<b>4.5.6B1</b>	Use communication to organize and clarify their mathematical thinking. • Reading and writing • Discussion, listening, and questioning	covered throughout the text
<b>4.5.6B2</b>	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	covered throughout the text
<b>4.5.6B3</b>	Analyze and evaluate the mathematical thinking and strategies of others.	1-4, 1-5, 2-5, 3-2, 4-1, 4-3, 4-5, 4-6, 5-4, 5-6, 6-3, 6-4, 6-6, 7-4, 7-6, 8-2, 8-5, 9-1, 9-3, 9-6, 10-1, 10-3, 10-7, 11-1, 11-3, 12-5, 13-1, 13-5, 14-2, 14-3
<b>4.5.6B4</b>	Use the language of mathematics to express mathematical ideas precisely.	covered throughout the text
<b>C. Connections</b>		
<b>4.5.6C1</b>	Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	1-1, 7-6a, 7-6
<b>4.5.6C2</b>	Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).	covered throughout the text
<b>4.5.6C3</b>	Recognize that mathematics is used in a variety of contexts outside of mathematics.	covered throughout the text
<b>4.5.6C4</b>	Apply mathematics in practical situations and in other disciplines.	covered throughout the text
<b>4.5.6C5</b>	Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).	covered in the Chapter Resource Masters
<b>4.5.6C6</b>	Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	covered throughout the text
<b>D. Reasoning</b>		
<b>4.5.6D1</b>	Recognize that mathematical facts, procedures, and claims must be justified.	covered throughout the text
<b>4.5.6D2</b>	Use reasoning to support their mathematical conclusions and problem solutions.	covered throughout the text

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<b>4.5.6D3</b>	Select and use various types of reasoning and methods of proof.	3-1a, 3-1b, 4-1a, 4-2a, 4-4a, 5-2a, 6-1a, 6-4a, 7-2a, 7-4a, 8-2a, 9-1a, 9-2a, 9-3a, 9-4b, 9-6a, 10-1b, 10-3b, 10-7a, 11-1a, 11-1b, 11-3a, 12-1a, 12-3a, 12-3b, 13-3a, 13-4b, 13-5b, 13-6b, 14-2a, 14-2b, 14-3b, 14-4b, 14-6a
<b>4.5.6D4</b>	Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions.	4-4b
<b>4.5.6D5</b>	Make and investigate mathematical conjectures. <ul style="list-style-type: none"> <li>• Counterexamples as a means of disproving conjectures</li> <li>• Verifying conjectures using informal reasoning or proofs.</li> </ul>	1-3, 3-1a, 3-1b, 4-1a, 4-2a, 4-3, 5-1, 6-4a, 7-2a, 8-2a, 8-4, 9-1a, 9-2a, 9-3a, 9-4b, 12-1a, 12-1b
<b>4.5.6D6</b>	Evaluate examples of mathematical reasoning and determine whether they are valid.	4-4b, 5-4, 9-3
<b>E. Representations</b>		
<b>4.5.6E1</b>	Create and use representations to organize, record, and communicate mathematical ideas. <ul style="list-style-type: none"> <li>• Concrete representations (e.g., base-ten blocks or algebra tiles)</li> <li>• Pictorial representations (e.g., diagrams, charts, or tables)</li> <li>• Symbolic representations (e.g., a formula)</li> <li>• Graphical representations (e.g., a line graph)</li> </ul>	covered throughout the text
<b>4.5.6E2</b>	Select, apply, and translate among mathematical representations to solve problems.	covered throughout the text
<b>4.5.6E3</b>	Use representations to model and interpret physical, social, and mathematical phenomena.	covered throughout the text
<b>F. Technology</b>		
<b>4.5.6F1</b>	Use technology to gather, analyze, and communicate mathematical information.	2-2b, 2-6b, 2-7b, 4-6b, 10-2b, 12-1b
<b>4.5.6F2</b>	Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information.	2-2b, 2-6b, 2-7b, 4-6b, 10-2b, 12-1b
<b>4.5.6F3</b>	Use graphing calculators and computer software to investigate properties of functions and their graphs.	covered in MAC 3
<b>4.5.6F4</b>	Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions).	1-4, 5-7, 10-7
<b>4.5.6F5</b>	Use computer software to make and verify conjectures about geometric objects.	12-1b
<b>4.5.6F6</b>	Use computer-based laboratory technology for mathematical applications in the sciences.	covered in Course 2 and Course 3 Science and Mathematics Lab Manual on the Internet (msmath2.net and msmath3.net)

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