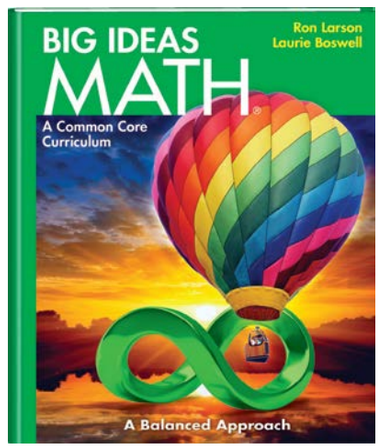

Big Ideas Math (Green)
Correlation to the Common Core State Standards
Regular Pathway - Grade 6

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

Standard		Pages or Locations Where Standard is Addressed
Domain: Ratios and Proportional Relationships		
6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	*Primary SE/TE:* 190-195 (5.1), 196-203 (5.2) *Supporting SE/TE:* 204-209 (5.3), 210-215 (5.4)
6.RP.2	Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.	*Primary SE/TE:* 204-209 (5.3), 210-215 (5.4)
6.RP.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	
	a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	*Primary SE/TE:* 196-203 (5.2), 204-209 (5.3), 210-215 (5.4) *Supporting SE/TE:* 314-321 (7.4)
	b. Solve unit rate problems including those involving unit pricing and constant speed.	*Primary SE/TE:* 204-209 (5.3), 210-215 (5.4)
	c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	*Primary SE/TE:* 218-223 (5.5), 224-231 (5.6) *Supporting SE/TE:* 433
	d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	*Primary SE/TE:* 232-237 (5.7)
Domain: The Number System		
6.NS.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	*Primary SE/TE:* 62-69 (2.2), 70-75 (2.3) *Supporting SE/TE:* 54-61 (2.1), 189
6.NS.2	Fluently divide multi-digit numbers using the standard algorithm.	*Primary SE/TE:* 2-9 (1.1)
6.NS.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	*Primary SE/TE:* 78-83 (2.4), 84-91 (2.5), 92-99 (2.6)
6.NS.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	*Primary SE/TE:* 30-35 (1.5), 36-41 (1.6), 132-139 (3.4), 140-141 (Ext. 3.4) *Supporting SE/TE:* 24-29 (1.4), 42-43 (Ext. 1.6)

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

Standard		Pages or Locations Where Standard is Addressed
6.NS.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	*Primary SE/TE:* 248-253 (6.1), 254-259 (6.2), 260-265 (6.3)
6.NS.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	
	a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite.	*Primary SE/TE:* 248-253 (6.1), 260-265 (6.3)
	b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	*Primary SE/TE:* 274-281 (6.5), 282-283 (Ext. 6.5)
	c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	*Primary SE/TE:* 248-253 (6.1), 254-259 (6.2), 260-265 (6.3), 274-281 (6.5), 282-283 (Ext . 6.5) *Supporting SE/TE:* 268-273 (6.4)
6.NS.7	Understand ordering and absolute value of rational numbers.	
	a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.	*Primary SE/TE:* 254-259 (6.2), 260-265 (6.3), 268-273 (6.4), 289
	b. Write, interpret, and explain statements of order for rational numbers in real-world contexts.	*Primary SE/TE:* 254-259 (6.2), 260-265 (6.3) *Supporting SE/TE:* 268-273 (6.4)
	c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.	*Primary SE/TE:* 268-273 (6.4)
	d. Distinguish comparisons of absolute value from statements about order.	*Primary SE/TE:* 268-273 (6.4)
6.NS.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	*Primary SE/TE:* 274-281 (6.5)

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

Standard		Pages or Locations Where Standard is Addressed
Domain: Expressions and Equations		
6.EE.1	Write and evaluate numerical expressions involving whole-number exponents.	*Primary SE/TE:* 16-21 (1.3) *Supporting SE/TE:* 10-15 (1.2), 109
6.EE.2	Write, read, and evaluate expressions in which letters stand for numbers.	
	a. Write expressions that record operations with numbers and with letters standing for numbers.	*Primary SE/TE:* 118-123 (3.2) *Supporting SE/TE:* 293
	b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.	*Primary SE/TE:* 132-139 (3.4), 140-141 (Ext. 3.4) *Supporting SE/TE:* 30-35 (1.5)
	c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	*Primary SE/TE:* 110-117 (3.1) *Supporting SE/TE:* 293
6.EE.3	Apply the properties of operations to generate equivalent expressions.	*Primary SE/TE:* 126-131 (3.3), 132-139 (3.4), 140-141 (Ext. 3.4)
6.EE.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	*Primary SE/TE:* 126-131 (3.3), 132-139 (3.4), 140-141 (Ext. 3.4)
6.EE.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	*Primary SE/TE:* 300-307 (7.2), 308-313 (7.3), 324-331 (7.5), 332-337 (7.6), 338-343 (7.7)
6.EE.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	*Primary SE/TE:* 110-117 (3.1), 294-299 (7.1) *Supporting SE/TE:* 118-123 (3.2), 126-131 (3.3), 132-139 (3.4)
6.EE.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	*Primary SE/TE:* 294-299 (7.1), 300-307 (7.2), 308-313 (7.3)
6.EE.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	*Primary SE/TE:* 324-331 (7.5), 332-337 (7.6), 338-343 (7.7)

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

Standard		Pages or Locations Where Standard is Addressed
6.EE.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	*Primary SE/TE:* 314-321 (7.4)
Domain: Geometry		
6.G.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	*Primary SE/TE:* 152-157 (4.1), 158-163 (4.2), 166-171 (4.3) *Supporting SE/TE:* 172-173 (Ext. 4.3)
6.G.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l\ w\ h$ and $V = b\ h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	*Primary SE/TE:* 374-379 (8.4)
6.G.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	*Primary SE/TE:* 174-179 (4.4)
6.G.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	*Primary SE/TE:* 360-365 (8.2), 368-373 (8.3) *Supporting SE/TE:* 354-359 (8.1)
Domain: Statistics and Probability		
6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	*Primary SE/TE:* 390-395 (9.1)
6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	*Primary SE/TE:* 396-401 (9.2), 402-409 (9.3), 412-417 (9.4), 418-423 (9.5), 450-455 (10.3), 458-465 (10.4) *Supporting SE/TE:* 390-395 (9.1), 440-447 (10.2)
6.SP.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	*Primary SE/TE:* 396-401 (9.2), 402-409 (9.3), 412-417 (9.4), 418-423 (9.5)

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

Standard		Pages or Locations Where Standard is Addressed
6.SP.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	*Primary SE/TE:* 390-395 (9.1), 440-447 (10.2), 450-455 (10.3), 458-465 (10.4) *Supporting SE/TE:* 434-439 (10.1)
6.SP.5	Summarize numerical data sets in relation to their context, such as by:	
	a. Reporting the number of observations.	*Primary SE/TE:* 396-401 (9.2), 418-423 (9.5) *Supporting SE/TE:* 390-395 (9.1)
	b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	*Primary SE/TE:* 390-395 (9.1)
	c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	*Primary SE/TE:* 396-401 (9.2), 402-409 (9.3), 412-417 (9.4), 418-423 (9.5), 458-465 (10.4)
	d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	*Primary SE/TE:* 456-457 (Ext. 10.3)

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

	Standard	Pages or Locations Where Standard is Addressed
Mathematical Practices		
		Big Ideas Math is a research-based program, systematically developed using the Common Core State Standards for Mathematical Practice as the underlying structure. The Standards for Mathematical Practice are seamlessly connected to the Common Core State Content Standards resulting in a program that maximizes both teacher effectiveness and student understanding. Every section has additional Mathematical Practice support in the Dynamic Classroom and in the online Lesson Plans at *BigIdeasMath.com* .
1	Make sense of problems and persevere in solving them. Mathematically proficient students: • Explain to themselves the meaning of a problem and looking for entry points to its solution. • Analyze givens, constraints, relationships, and goals • Make conjectures about the form and meaning of the solution attempt. • Plan a solution pathway rather than simply jumping into a solution. • Consider analogous problems and try special cases and simpler forms of the original problen in order to gain insight into its solution. • Monitor and evaluate their progress and change course if necessary. • Transform algebraic expressions or change the viewing window on their graphing calculator to get information. • Explain correspondences between equations, verbal descriptions, tables, and graphs. • Draw diagrams of important features and relationships, graph data, and search for regularity or trends. • Use concrete objects or pictures to help conceptualize and solve a problem. • Check their answers to problems using a different method. • Ask themselves, “Does this make sense?” • Understand the approaches of others to solving complex problems and identify correspondences between approaches.	Each section begins with an Essential Question. Students look for entry points using guides such as In Your Own Words. Clear step-by-step examples encourage students to plan a solution pathway rather than jumping into a solution attempt. Guided questions and instructional scaffolding support students’ perseverance. ***Sample references:*** Chapter 1, pages 30-35 Chapter 2, pages 54-61 Chapter 3, pages 132-139 Chapter 5, pages 218-223 Chapter 5, pages 232-237 Chapter 6, pages 260-265 Chapter 6, pages 274-281 Chapter 7, pages 294-299 Chapter 7, pages 338-343 Chapter 8, pages 368-373 Chapter 9, pages 412-417

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

	Standard	Pages or Locations Where Standard is Addressed
2	Reason abstractly and quantitively. Mathematically proficient students: • Make sense of quantities and their relationships in problem situations. • Bring two complementary abilities to bear on problems involving quantitative relationships: - Decontextualize (abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents) and - Contextualize (pause as needed during the manipulation process in order to probe into the referents for the symbols involved) • Use quantitative reasoning that entails creating a coherent representation of the problem at hand, considering the units involved, and attending to the meaning of quantities, not just how to compute them . • Know and flexibly use different properties of operations and objects.	Students learn to represent problems by consistently using a verbal model, paying close attention to units and employing mathematical properties. This helps students represent problems symbolically and manipulate the representative symbols. They are taught to contextualize by thinking about the referents and symbols involved. ***Sample references:*** Chapter 1, pages 16-21 Chapter 2, pages 70-75 Chapter 3, pages 110-117 Chapter 3, pages 118-123 Chapter 5, pages 196-203 Chapter 7, pages 300-307 Chapter 9, pages 418-423

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

	Standard	Pages or Locations Where Standard is Addressed
3	Construct viable arguments and critique the reasoning of others. Mathematically proficient students: • Understand and use stated assumptions, definitions, and previously established results in constructing arguments. • Make conjectures and build a logical progression of statements to explore the truth of their conjectures. • Analyze situations by breaking them into cases. • Recognize and use counterexamples. • Justify their conclusions, communicate them to others, and respond to the arguments of others. • Reason inductively about data, making plausible arguments that take into account the context from which the data arose. • Compare the effectiveness of two plausible arguments. • Distinguish correct logic or reasoning from that which is flawed and, if there is a flaw, explain what it is - Elementary students construct arguments using concrete referents such as objects, drawings, diagrams, and actions. - Later students learn to determine domains to which an argument applies. • Listen or read the arguments of others, decide whether they make sense, and ask useful question to clarify or improve arguments.	Throughout the series students are expected to develop models, formulate deductions, and make conjectures. Essential Questions, Error Analysis exercises, and Reasoning exercises provide opportunities for students to make assumptions, examine results, and explain their reasoning. What Is Your Answer, In Your Own Words, You Be The Teacher, and Which One Doesn't Belong encourage debate and sensemaking. ***Sample references:*** Chapter 1, pages 36-41 Chapter 2, pages 78-83 Chapter 3, pages 126-131 Chapter 4, pages 152-157 Chapter 9, pages 390-395 Chapter 10, pages 450-455

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

	Standard	Pages or Locations Where Standard is Addressed
4	Model with mathematics. Mathematically proficient students: • Apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. - In early grades, this might be as simple as writing an addition equation to describe a situation. - In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. - By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. • Make assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. • Identify important quantities in a practical situation • Map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. • Analyze those relationships mathematically to draw conclusions. • Interpret their mathematical results in the context of the situation. • Reflect on whether the results make sense, possibly improving the model if it has not served its purpose.	In each section, students work with the mathematics of everyday life. Students use graphs, tables, charts, number lines, diagrams, flowcharts, and formulas to organize, make sense of, and identify realistic solutions to real-life situations. Students write stories involving math, on topics such as using percents to help them improve their grades. Visual representations, such as integer tiles and fraction models, help students make sense of numeric operations. ***Sample references:*** Chapter 1, pages 24-29 Chapter 2, pages 62-69 Chapter 5, pages 190-195 Chapter 7, pages 308-313 Chapter 7, pages 332-337 Chapter 8, pages 374-379 Chapter 9, pages 402-409 Chapter 10, pages 434-439

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

	Standard	Pages or Locations Where Standard is Addressed
5	Use appropriate tools strategically. Mathematically proficient students: • Consider available tools when solving a mathematical problem. (pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer algebra system, statistical package, or dynamic geometry software) • Are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. • Detect possible errors by strategically using estimation and other mathematical knowledge. • Know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. • Identify relevant external mathematical resources and use them to pose or solve problems. • Use technological tools to explore and deepen their understanding of concepts.	Opportunities for students to select and use appropriate tools such as graphing calculators, protractors, measuring devices, websites, and other external resources are provided for students throughout the series. ***Sample references:*** Chapter 6, pages 254-259 Chapter 6, pages 268-273
6	Attend to Precision. Mathematically proficient students: • Try to communicate precisely to others. - In the elementary grades, students give carefully formulated explanations to each other. - In high school, students have learned to examine claims and make explicit use of definitions. • Try to use clear definitions in discussion with others and in their own reasoning. • State the meaning of the symbols they choose, including using the equal sign consistently and appropriately. • Specify units of measure and label axes to clarify the correspondence with quantities in a problem. • Calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context.	Through the balanced approach to instruction, students have daily opportunities to communicate mathematically. Students work through activities, examples, and exercises to understand and use the language of mathematics, paying careful attention to the importance of units, labeling, and quantities. ***Sample references:*** Chapter 1, pages 2-9 Chapter 4, pages 158-163 Chapter 4, pages 166-171 Chapter 5, pages 204-209 Chapter 7, pages 324-331 Chapter 9, pages 396-401 Chapter 10, pages 440-447

Big Ideas Math (Green) ©2014
Correlated to
Common Core State Standards for Mathematics Grade 6

	Standard	Pages or Locations Where Standard is Addressed
7	Look for and make use of structure. Mathematically proficient students: • Look closely to discern a pattern or structure. - Young students might notice that three and seven more is the same amount as seven and three more or they may sort a collection of shapes according to how many sides the shapes have. - Later, students will see 7 x 8 equals the well remembered 7 x 5 + 7 x 3, in preparation for the distributive property. - In the expression x^2 + 9x + 14, older students can see the 14 as 2 x 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. • Step back for an overview and can shift perspective. • See complicated things, such as some algebraic expressions, as single objects or composed of several objects.	Real and relevant word problems encourage students to "see" that these problems are composed of several components. Students find that some mathematical representations share common mathematical structures and learn to look for these relationships discerning inherent patterns and structures. ***Sample references:*** Chapter 2, pages 84-91 Chapter 5, pages 210-215 Chapter 7, pages 314-321 Chapter 8, pages 354-359 Chapter 10, pages 458-465
8	Look for and express regularity in repeated reasoning. Mathematically proficient students: • Notice if calculations are repeated. • Look both for general methods and for shortcuts. - Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeated decimal. - Paying attention to the calculation of slope as they repeatedly check whether the points are on the line through (1,2) with a slope 3, middle school students might abstract the equation (y-2)/(x-1)=3. - Noticing the regularity in the way terms cancel when expanding (x-1)(x+1), $(x-1)(x^2+x+1)$, and $(x-1)(x^3+x^2+x+1)$ might lead high school students to the general formula for the sum of a geometric series. • Maintain oversight of the process of solving a problem, while attending to the details. • Continually evaluate the reasonableness of intermediate results.	The series helps students see that mathematics is well structured and predictable. Students work through a problem, not through the numbers. They consider factors such as an appropriate answer to the question, reasonable intermediate steps, and a realistic solution. ***Sample references:*** Chapter 1, pages 10-15 Chapter 2, pages 92-99 Chapter 4, pages 174-179 Chapter 5, pages 224-231 Chapter 6, pages 248-253 Chapter 8, pages 360-365