

***Prentice Hall: Connected Mathematics\* '1998***  
 Correlated to  
**Massachusetts Mathematics Curriculum Framework Learning Standards  
 (Grade 8)**

CURRICULUM FRAMEWORK LEARNING STANDARDS	PAGE(S) WHERE TAUGHT (If submission is not a book, cite appropriate location(s))
<b>STRAND 1: NUMBER SENSE</b>	
<b>Number and Number Relationships</b>	
¥ Represent and use equivalent forms of numbers, including integers, fractions, decimals, percents, exponents, and scientific notation.	<u>Thinking with Mathematical Models</u> Investigation 1: Linear Models, 5-25 Investigation 2: Nonlinear Models, 26-36  <u>Looking for Pythagoras</u> Investigation 3: The Pythagorean Theorem, 27-40 Investigation 4: Using the Pythagorean Theorem, 41-52 Investigation 5: Irrational Numbers, 53-63  <u>Growing, Growing, Growing</u> Investigation 1: Exponential Growth, 5-16 Investigation 4: Exponential Decay, 45-60  <u>Frogs, Fleas, and Painted Cubes</u> Investigation 1: Introduction to Quadratic Relationships, 5-18 Investigation 2: Quadratic Expressions, 19-40  <u>Say It with Symbols</u> Investigation 1: Order of Operations, 5-19 Investigation 2: Equivalent Expressions, 20-33  <u>Samples and Populations</u> Investigation 4: Solving Real-World Problems, 49-62

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¥ Apply ratios, proportions, and percents.	<u>Looking for Pythagoras</u> Investigation 6: Rational and Irrational Slopes, 64-72 <u>Growing, Growing, Growing</u> Investigation 1: Exponential Growth, 5-16 Investigation 4: Exponential Decay, 45-60 <u>Frogs, Fleas, and Painted Cubes</u> Investigation 1: Introduction to Quadratic Relationships, 5-18 Investigation 5: Painted Cubes, 71-84 <u>Samples and Populations</u> Investigation 1: Comparing Data Sets, 5-23 Investigation 4: Solving Real-World Problems, 49-62
¥ Investigate and describe the relationships among fractions, decimals, and percents.	<u>Looking for Pythagoras</u> Investigation 6: Rational and Irrational Slopes, 64-72 <u>Samples and Populations</u> Investigation 1: Comparing Data Sets, 5-23 Investigation 4: Solving Real-World Problems, 49-62

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¥ Represent numerical relationships in one- and two-dimensional graphs.	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p>
<b>Number Systems and Number Theory</b>	
¥ Explain the need for numbers other than whole numbers.	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Looking for Pythagoras</u>            Investigation 1: Locating Points, 5-16            Investigation 5: Irrational Numbers, 53-63            Investigation 6: Rational and Irrational Slopes, 64-72</p>

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<p>¥ Know and use order relations for whole numbers, fractions, decimals, integers, and rational numbers.</p>	<p><u>Growing, Growing, Growing</u>            Investigation 2: Growth Patterns, 17-30</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18</p> <p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 3: Random Samples, 37-48</p> <p><u>Clever Counting</u>            Investigation 1: Counting Possibilities, 5-14</p>
<p>¥ Use operations involving fractions, decimals, integers, and rational numbers.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>
<p>¥ Demonstrate how basic operations are related to one another.</p>	<p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52</p>

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<p>¥ Create and apply number theory concepts, including prime numbers, factors, and multiples.</p>	<p><u>Looking for Pythagoras</u>            Investigation 5: Irrational Numbers, 53-63            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52</p>
<b>Computation and Estimation</b>	
<p>¥ Compute with whole numbers, fractions, decimals, integers, and rational numbers.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<p>‡ Develop, analyze, and explain procedures for computing, estimating, and solving proportions.</p>	<p><u>Looking for Pythagoras</u>            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 5: Painted Cubes, 71-84</p> <p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 4: Solving Real-World Problems, 49-62</p>

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<p>¥ Select and use an appropriate method for computing from among mental math, estimation, paper-and-pencil, calculator, and computer methods.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Looking for Pythagoras</u>            Investigation 1: Locating Points, 5-16            Investigation 2: Finding Areas and Lengths, 17-26            Investigation 3: The Pythagorean Theorem, 27-40            Investigation 4: Using the Pythagorean Theorem, 41-52            Investigation 5: Irrational Numbers, 53-63            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<p>‡ Use computation, estimation, and proportions to solve problems.</p>	<p><u>Looking for Pythagoras</u>            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 5: Painted Cubes, 71-84</p> <p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 4: Solving Real-World Problems, 49-62</p>

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<p>¥ Estimate to check the reasonableness of results of computations and problems involving rational numbers.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Looking for Pythagoras</u>            Investigation 2: Finding Areas and Lengths, 17-26            Investigation 3: The Pythagorean Theorem, 27-40            Investigation 4: Using the Pythagorean Theorem, 41-52</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p> <p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 4: Solving Real-World Problems, 49-62</p>

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<b>STRAND 2: PATTERNS, RELATIONS, AND FUNCTIONS</b>	
<b>Patterns and Functions</b>	
<p>¥ Describe, extend, analyze, and create a wide variety of patterns.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 4: A World of Patterns, 47-59</p> <p><u>Looking for Pythagoras</u>            Investigation 5: Irrational Numbers, 53-63            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Growing, Growing, Growing</u>            Investigation 2: Growth Patterns, 17-30</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 5: Painted Cubes, 71-84</p> <p><u>Clever Counting</u>            Investigation 1: Counting Possibilities, 5-14            Investigation 2: Opening Locks, 15-26            Investigation 3: Networks, 27-36            Investigation 4: Deciding Whether Order Is Important, 37-46            Investigation 5: Wrapping Things Up, 47-56</p>

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<p>¥ Describe and represent relationships with models, tables, graphs, and rules, using sentences and algebraic expressions.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p>

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<p>¥ Analyze functional relationships to explain how a change in one quantity results in a change in another.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<p>¥ Use patterns and functions to represent and solve problems.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Clever Counting</u>            Investigation 1: Counting Possibilities, 5-14            Investigation 2: Opening Locks, 15-26            Investigation 3: Networks, 27-36            Investigation 4: Deciding Whether Order Is Important, 37-46            Investigation 5: Wrapping Things Up, 47-56</p>

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<b>Algebra</b>	
<p>¥ Understand and apply the concepts of variable, expression, and equation.</p>	<p><u>Thinking with Mathematical Models</u>                      Investigation 1: Linear Models, 5-25                      Investigation 2: Nonlinear Models, 26-36                      Investigation 3: More Nonlinear Models, 37-46                      Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>                      Investigation 1: Exponential Growth, 5-16                      Investigation 2: Growth Patterns, 17-30                      Investigation 3: Growth Factors, 31-44                      Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>                      Investigation 1: Introduction to Quadratic Relationships, 5-18                      Investigation 2: Quadratic Expressions, 19-40                      Investigation 3: Quadratic Patterns of Change, 41-51                      Investigation 4: What is a Quadratic Function?, 52-70                      Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>                      Investigation 1: Order of Operations, 5-19                      Investigation 2: Equivalent Expressions, 20-33                      Investigation 3: Some Important Properties, 34-52                      Investigation 4: Solving Equations, 53-64                      Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<p>¥ Represent situations and number patterns with tables, graphs, verbal rules, and equations and explore the interrelationships of these representations.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<p>¥ Analyze tables and graphs to identify properties and relationships.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p>
<p>¥ Demonstrate an ability to solve linear equations using concrete, informal, and formal methods.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 4: A World of Patterns, 47-59</p> <p><u>Say It with Symbols</u>            Investigation 4: Solving Equations, 53-64</p>

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<p>¥ Describe the strategies used to explore inequalities and nonlinear equations.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p>

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<p>¥ Apply algebraic methods to solve a variety of real-world and theoretical problems.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<p>¥ Construct expressions or equations that model problems.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<p>¥ Explore and describe a variety of ways to solve equations, including hand-on activities, trial and error, and numerical analysis.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>
<p>¥ Know and apply algebraic procedures for solving equations and inequalities.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<b>STRAND 3: GEOMETRY AND MEASUREMENT</b>	
<b>Geometry</b>	
<p>¥ Identify, describe, compare, and classify geometric figures.</p>	<p><u>Looking for Pythagoras</u>                      Investigation 2: Finding Areas and Lengths, 17-26                      Investigation 3: The Pythagorean Theorem, 27-40                      Investigation 4: Using the Pythagorean Theorem, 41-52</p> <p><u>Frogs, Fleas, and Painted Cubes</u>                      Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>                      Investigation 5: Writing Expressions for Surface Area, 65-70</p> <p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>                      Investigation 1: Three Types of Symmetry, 5-23                      Investigation 2: Symmetry Transformations, 24-41                      Investigation 3: Transforming Coordinates, 42-58                      Investigation 4: Symmetry and Algebra, 59-70</p>
<p>¥ Explore and describe the properties of points, lines, and planes.</p>	<p><u>Looking for Pythagoras</u>                      Investigation 1: Locating Points, 5-16                      Investigation 2: Finding Areas and Lengths, 17-26                      Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>                      Investigation 1: Three Types of Symmetry, 5-23                      Investigation 2: Symmetry Transformations, 24-41                      Investigation 3: Transforming Coordinates, 42-58                      Investigation 4: Symmetry and Algebra, 59-70</p>

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<p>¥ Visualize and draw geometric figures.</p>	<p><u>Looking for Pythagoras</u>            Investigation 1: Locating Points, 5-16            Investigation 2: Finding Areas and Lengths, 17-26            Investigation 3: The Pythagorean Theorem, 27-40            Investigation 4: Using the Pythagorean Theorem, 41-52            Investigation 5: Irrational Numbers, 53-63            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>            Investigation 1: Three Types of Symmetry, 5-23            Investigation 2: Symmetry Transformations, 24-41            Investigation 3: Transforming Coordinates, 42-58            Investigation 4: Symmetry and Algebra, 59-70</p>
<p>¥ Explore and describe transformations of geometric figures.</p>	<p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>            Investigation 1: Three Types of Symmetry, 5-23            Investigation 2: Symmetry Transformations, 24-41            Investigation 3: Transforming Coordinates, 42-58            Investigation 4: Symmetry and Algebra, 59-70</p>

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<p>¥ Represent and solve problems, using geometric models.</p>	<p><u>Looking for Pythagoras</u>            Investigation 2: Finding Areas and Lengths, 17-26            Investigation 3: The Pythagorean Theorem, 27-40            Investigation 4: Using the Pythagorean Theorem, 41-52</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 5: Writing Expressions for Surface Area, 65-70</p> <p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>            Investigation 1: Three Types of Symmetry, 5-23            Investigation 2: Symmetry Transformations, 24-41            Investigation 3: Transforming Coordinates, 42-58            Investigation 4: Symmetry and Algebra, 59-70</p>
<p>¥ Apply geometric properties and relationships.</p>	<p><u>Looking for Pythagoras</u>            Investigation 2: Finding Areas and Lengths, 17-26            Investigation 3: The Pythagorean Theorem, 27-40            Investigation 4: Using the Pythagorean Theorem, 41-52</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 5: Writing Expressions for Surface Area, 65-70</p> <p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>            Investigation 1: Three Types of Symmetry, 5-23            Investigation 2: Symmetry Transformations, 24-41            Investigation 3: Transforming Coordinates, 42-58            Investigation 4: Symmetry and Algebra, 59-70</p>

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¥ Develop and explain the concept of pi.	<u>Say It with Symbols</u> Investigation 1: Order of Operations, 5-19
¥ Develop and explain the concept of the pythagorean theorem.	<u>Looking for Pythagoras</u> Investigation 2: Finding Areas and Lengths, 17-26 Investigation 3: The Pythagorean Theorem, 27-40 Investigation 4: Using the Pythagorean Theorem, 41-52
<b>Measurement</b>	
¥ Select appropriate units and tools to measure to the degree of accuracy required in a particular situation.	<u>Thinking with Mathematical Models</u> Investigation 1: Linear Models, 5-25 Investigation 2: Nonlinear Models, 26-36 Investigation 3: More Nonlinear Models, 37-46 <u>Looking for Pythagoras</u> Investigation 1: Locating Points, 5-16 Investigation 2: Finding Areas and Lengths, 17-26
¥ Describe the meaning of perimeter, area, volume, angle measure, capacity, density, weight, and mass.	<u>Thinking with Mathematical Models</u> Investigation 1: Linear Models, 5-25 Investigation 2: Nonlinear Models, 26-36 <u>Looking for Pythagoras</u> Investigation 1: Locating Points, 5-16 Investigation 2: Finding Areas and Lengths, 17-26 <u>Frogs, Fleas, and Painted Cubes</u> Investigation 4: What is a Quadratic Function?, 52-70 <u>Say It with Symbols</u> Investigation 5: Writing Expressions for Surface Area, 65-70

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<p>¥ Develop and describe the concepts of rates and other derived and indirect measurements.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46</p> <p><u>Looking for Pythagoras</u>            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 3: Quadratic Patterns of Change, 41-51</p> <p><u>Say It with Symbols</u>            Investigation 5: Writing Expressions for Surface Area, 65-70</p> <p><u>Samples and Populations</u>            Investigation 4: Solving Real-World Problems, 49-62</p>

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<p>¥ Develop and apply formulas and procedures for determining measures to solve problems.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Looking for Pythagoras</u>            Investigation 1: Locating Points, 5-16            Investigation 2: Finding Areas and Lengths, 17-26            Investigation 3: The Pythagorean Theorem, 27-40            Investigation 4: Using the Pythagorean Theorem, 41-52            Investigation 5: Irrational Numbers, 53-63            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p>

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<b>STRAND 4: STATISTICS AND PROBABILITY</b>	
<b>Statistics</b>	
¥ Collect, organize, and describe data systematically.	<u>Thinking with Mathematical Models</u> Investigation 1: Linear Models, 5-25 Investigation 2: Nonlinear Models, 26-36 Investigation 3: More Nonlinear Models, 37-46 Investigation 4: A World of Patterns, 47-59  <u>Samples and Populations</u> Investigation 1: Comparing Data Sets, 5-23 Investigation 2: Conducting Surveys, 24-36 Investigation 3: Random Samples, 37-48 Investigation 4: Solving Real-World Problems, 49-62
¥ Construct, read, and interpret tables, charts, and graphs.	<u>Thinking with Mathematical Models</u> Investigation 1: Linear Models, 5-25 Investigation 2: Nonlinear Models, 26-36 Investigation 3: More Nonlinear Models, 37-46 Investigation 4: A World of Patterns, 47-59  <u>Samples and Populations</u> Investigation 1: Comparing Data Sets, 5-23 Investigation 2: Conducting Surveys, 24-36 Investigation 3: Random Samples, 37-48 Investigation 4: Solving Real-World Problems, 49-62

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<p>¥ Make inferences and convincing arguments that are based on data analysis.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 2: Conducting Surveys, 24-36            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p>
<p>¥ Evaluate arguments that are based on data analysis.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 2: Conducting Surveys, 24-36            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p>

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<p>¥ Develop and explain why statistical methods are powerful aids for decision making.</p>	<p><u>Thinking with Mathematical Models</u>                      Investigation 1: Linear Models, 5-25                      Investigation 2: Nonlinear Models, 26-36                      Investigation 3: More Nonlinear Models, 37-46                      Investigation 4: A World of Patterns, 47-59</p> <p><u>Samples and Populations</u>                      Investigation 1: Comparing Data Sets, 5-23                      Investigation 2: Conducting Surveys, 24-36                      Investigation 3: Random Samples, 37-48                      Investigation 4: Solving Real-World Problems, 49-62</p>
<b>Probability</b>	
<p>¥ Model situations by devising and carrying out experiments or simulations to determine probabilities.</p>	<p><u>Samples and Populations</u>                      Investigation 3: Random Samples, 37-48                      Investigation 4: Solving Real-World Problems, 49-62</p> <p><u>Clever Counting</u>                      Investigation 2: Opening Locks, 15-26                      Investigation 4: Deciding Whether Order Is Important, 37-46</p>
<p>¥ Construct a sample space to determine probabilities.</p>	<p><u>Samples and Populations</u>                      Investigation 3: Random Samples, 37-48                      Investigation 4: Solving Real-World Problems, 49-62</p> <p><u>Clever Counting</u>                      Investigation 2: Opening Locks, 15-26                      Investigation 4: Deciding Whether Order Is Important, 37-46</p>

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<p>¥ Describe the power of using a probability model by comparing experimental results with mathematical expectations.</p>	<p><u>Samples and Populations</u>            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p> <p><u>Clever Counting</u>            Investigation 2: Opening Locks, 15-26            Investigation 4: Deciding Whether Order Is Important, 37-46</p>
<p>¥ Make predictions that are based on experimental or theoretical probabilities and determine their reasonableness.</p>	<p><u>Samples and Populations</u>            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p> <p><u>Clever Counting</u>            Investigation 1: Counting Possibilities, 5-14            Investigation 2: Opening Locks, 15-26            Investigation 3: Networks, 27-36            Investigation 4: Deciding Whether Order Is Important, 37-46            Investigation 5: Wrapping Things Up, 47-56</p>
<p>¥ Develop and explain an appreciation for the pervasive use of probability in the real world.</p>	<p><u>Samples and Populations</u>            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p> <p><u>Clever Counting</u>            Investigation 1: Counting Possibilities, 5-14            Investigation 2: Opening Locks, 15-26            Investigation 3: Networks, 27-36            Investigation 4: Deciding Whether Order Is Important, 37-46            Investigation 5: Wrapping Things Up, 47-56</p>

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<b>STRAND 1: NUMBER SENSE</b>	
<b>Number and Number Relationships</b>	
<p>¥ Apply number sense to estimate and choose appropriate forms of numbers for various purposes. (sample question 1)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36</p> <p><u>Looking for Pythagoras</u>            Investigation 5: Irrational Numbers, 53-63</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40</p> <p><u>Say It with Symbols</u>            Investigation 2: Equivalent Expressions, 20-33</p> <p><u>Samples and Populations</u>            Investigation 4: Solving Real-World Problems, 49-62</p>

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¥ Identify and use appropriate representations of numbers, e.g., Number lines. (sample question 2)	<u>Thinking with Mathematical Models</u> Investigation 1: Linear Models, 5-25 Investigation 2: Nonlinear Models, 26-36 <u>Looking for Pythagoras</u> Investigation 5: Irrational Numbers, 53-63 <u>Growing, Growing, Growing</u> Investigation 1: Exponential Growth, 5-16 Investigation 4: Exponential Decay, 45-60 <u>Frogs, Fleas, and Painted Cubes</u> Investigation 1: Introduction to Quadratic Relationships, 5-18 Investigation 2: Quadratic Expressions, 19-40 <u>Say It with Symbols</u> Investigation 2: Equivalent Expressions, 20-33 <u>Samples and Populations</u> Investigation 4: Solving Real-World Problems, 49-62
¥ Recognize and use equivalent forms of integers, fractions, decimals, percents, exponents, and scientific notation. (sample question 4)	<u>Thinking with Mathematical Models</u> Investigation 1: Linear Models, 5-25 Investigation 2: Nonlinear Models, 26-36 <u>Say It with Symbols</u> Investigation 2: Equivalent Expressions, 20-33 <u>Samples and Populations</u> Investigation 4: Solving Real-World Problems, 49-62

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¥ Use ratio, proportion, and percent to analyze a variety of problem-solving situations.(sample questions 3, 4)	<u>Thinking with Mathematical Models</u> Investigation 4: A World of Patterns, 47-59 <u>Samples and Populations</u> Investigation 1: Comparing Data Sets, 5-23 Investigation 4: Solving Real-World Problems, 49-62
<b>Number Systems and Number Theory</b>	
¥ Determine the effect of operations on different types of numbers, e.g., The sum of two negative numbers is less than either addend. (sample question 9)	<u>Say It with Symbols</u> Investigation 1: Order of Operations, 5-19 Investigation 2: Equivalent Expressions, 20-33 Investigation 3: Some Important Properties, 34-52
¥ Use relationships among operations, e.g., Use the fact that multiplying a number by $\frac{1}{3}$ is the same as dividing it by 3. (sample question 7)	<u>Say It with Symbols</u> Investigation 1: Order of Operations, 5-19 Investigation 2: Equivalent Expressions, 20-33 Investigation 3: Some Important Properties, 34-52
¥ Solve problems involving the ordering of whole numbers, fractions, decimals, and integers, e.g., Decide which item would be next largest within a set of items that are graduated by fractions of an inch. (sample question 5)	<u>Frogs, Fleas, and Painted Cubes</u> Investigation 1: Introduction to Quadratic Relationships, 5-18 <u>Samples and Populations</u> Investigation 1: Comparing Data Sets, 5-23

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¥ Factor numbers into component parts, e.g., Prime factorizations. (sample question 8)	<u>Looking for Pythagoras</u> Investigation 6: Rational and Irrational Slopes, 64-72 <u>Frogs, Fleas, and Painted Cubes</u> Investigation 1: Introduction to Quadratic Relationships, 5-18 Investigation 2: Quadratic Expressions, 19-40 Investigation 3: Quadratic Patterns of Change, 41-51 <u>Say It with Symbols</u> Investigation 2: Equivalent Expressions, 20-33 Investigation 3: Some Important Properties, 34-52
¥ Analyze relationships among numbers, e.g., Relationships involving factors, multiples, and divisibility. (samples questions 6, 8)	<u>Looking for Pythagoras</u> Investigation 6: Rational and Irrational Slopes, 64-72 <u>Frogs, Fleas, and Painted Cubes</u> Investigation 1: Introduction to Quadratic Relationships, 5-18 Investigation 2: Quadratic Expressions, 19-40 Investigation 3: Quadratic Patterns of Change, 41-51 <u>Say It with Symbols</u> Investigation 2: Equivalent Expressions, 20-33 Investigation 3: Some Important Properties, 34-52

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<b>Computation and Estimation (substrand)</b>	
<p>‡ Compute with whole numbers, fractions, decimals, integers, rational numbers, and exponents. (sample questions 10, 12, 13, 14, 15, 16, 17)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<p>¥ Use efficient strategies to estimate sums, differences, products, and quotients, as well as square roots of whole numbers, e.g., <math>\sqrt{17}</math>. (sample question 11)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46</p> <p><u>Looking for Pythagoras</u>            Investigation 2: Finding Areas and Lengths, 17-26            Investigation 4: Using the Pythagorean Theorem, 41-52</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 5: Painted Cubes, 71-84</p> <p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 4: Solving Real-World Problems, 49-62</p>
<p>¥ Apply the correct order of operations. (sample question 16)</p>	<p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19</p>

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<p>¥ Use estimation to check the reasonableness of solutions to problems.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46</p> <p><u>Looking for Pythagoras</u>            Investigation 2: Finding Areas and Lengths, 17-26            Investigation 4: Using the Pythagorean Theorem, 41-52</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 5: Painted Cubes, 71-84</p> <p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 4: Solving Real-World Problems, 49-62</p>

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<b>Ratio, Proportion, Percent (substrand)</b>	
<p>¥ Compute ratios, proportions, and percents and apply appropriately, e.g., In enlarging pictures, using scale models, finding sale prices after a series of discounts. (sample questions 18, 19, 20, 21, 22, 23)</p>	<p><u>Looking for Pythagoras</u>            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 5: Painted Cubes, 71-84</p> <p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 4: Solving Real-World Problems, 49-62</p>
<b>STRAND 2: PATTERNS, RELATIONS, AND FUNCTIONS</b>	
<b>Patterns and Functions</b>	
<p>¥ Extend and analyze the following types of patterns: numeric patterns, e.g., Sequences, input-output tables, pascal s triangle; geometric patterns, e.g., Triangular numbers, patterns of dots; and patterns in real-world or mathematical situations, e.g., Periods of a pendulum, patterns of digits in repeating decimals. (sample questions 26, 27, 28, 29)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 2: Growth Patterns, 17-30</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 3: Quadratic Patterns of Change, 41-51</p>

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<p>¥ Determine the rules or general terms for patterns of the types described above. (sample question 29)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 4: What is a Quadratic Function?, 52-70</p>
<p>¥ Describe and represent real-world or mathematical relationships by using verbal descriptions of rules, or charts and tables, e.g., Input-output tables, graphs. (sample question 24)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p>

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<p>¥ Describe how a change in one variable affects another in a functional relationship that is presented with word or pictures. (sample question 25)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 5: Writing Expressions for Surface Area, 65-70</p>

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<b>Algebra</b>	
¥ Evaluate algebraic expressions for given values of variables (substitution). (sample question 33)	<u>Thinking with Mathematical Models</u> Investigation 1: Linear Models, 5-25 Investigation 2: Nonlinear Models, 26-36 Investigation 3: More Nonlinear Models, 37-46 Investigation 4: A World of Patterns, 47-59  <u>Growing, Growing, Growing</u> Investigation 1: Exponential Growth, 5-16 Investigation 4: Exponential Decay, 45-60  <u>Frogs, Fleas, and Painted Cubes</u> Investigation 1: Introduction to Quadratic Relationships, 5-18 Investigation 2: Quadratic Expressions, 19-40  <u>Say It with Symbols</u> Investigation 2: Equivalent Expressions, 20-33
¥ Solve linear equations with one variable. (sample question 32)	<u>Thinking with Mathematical Models</u> Investigation 1: Linear Models, 5-25 Investigation 4: A World of Patterns, 47-59  <u>Say It with Symbols</u> Investigation 4: Solving Equations, 53-64

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¥ Graph on a coordinate plane. (sample question 34)	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Looking for Pythagoras</u>            Investigation 1: Locating Points, 5-16</p> <p><u>Growing, Growing, Growing</u>            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p>

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<p>¥ Describe and represent relationships with algebraic expressions and equations. (sample questions 30, 34)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46            Investigation 4: A World of Patterns, 47-59</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 2: Growth Patterns, 17-30            Investigation 3: Growth Factors, 31-44            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 1: Introduction to Quadratic Relationships, 5-18            Investigation 2: Quadratic Expressions, 19-40            Investigation 3: Quadratic Patterns of Change, 41-51            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19            Investigation 2: Equivalent Expressions, 20-33            Investigation 3: Some Important Properties, 34-52            Investigation 4: Solving Equations, 53-64            Investigation 5: Writing Expressions for Surface Area, 65-70</p>
<p>¥ Describe and represent relationships with inequalities. (sample question 31)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36</p>

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<p>¥ Describe how a change in one variable affects another variable in a functional relationship represented by an equation.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46</p> <p><u>Growing, Growing, Growing</u>            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 4: What is a Quadratic Function?, 52-70            Investigation 5: Painted Cubes, 71-84</p> <p><u>Say It with Symbols</u>            Investigation 4: Solving Equations, 53-64</p>

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<b>STRAND 3: GEOMETRY AND MEASUREMENT</b>	
<b>Geometry</b>	
¥ Identify, describe, compare, and classify geometric figures, e.g., explain how a square is a parallelogram. (sample question 35)	<u>Say It with Symbols</u> Investigation 5: Writing Expressions for Surface Area, 65-70 <u>Kaleidoscopes, Hubcaps, and Mirrors</u> Investigation 4: Symmetry and Algebra, 59-70
¥ Use the properties of geometric figures, e.g., find the measure of an angle in a regular polygon, recognize the fact that all circles are similar. (sample question 38)	<u>Looking for Pythagoras</u> Investigation 4: Using the Pythagorean Theorem, 41-52 <u>Frogs, Fleas, and Painted Cubes</u> Investigation 5: Painted Cubes, 71-84 <u>Say It with Symbols</u> Investigation 5: Writing Expressions for Surface Area, 65-70 <u>Kaleidoscopes, Hubcaps, and Mirrors</u> Investigation 1: Three Types of Symmetry, 5-23 Investigation 2: Symmetry Transformations, 24-41 Investigation 3: Transforming Coordinates, 42-58 Investigation 4: Symmetry and Algebra, 59-70

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<p>¥ Identify congruent and similar figures and use their properties.</p>	<p><u>Looking for Pythagoras</u>            Investigation 4: Using the Pythagorean Theorem, 41-52</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 5: Painted Cubes, 71-84</p> <p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>            Investigation 1: Three Types of Symmetry, 5-23            Investigation 2: Symmetry Transformations, 24-41            Investigation 3: Transforming Coordinates, 42-58            Investigation 4: Symmetry and Algebra, 59-70</p>
<p>¥ Demonstrate understanding of spatial relationships, e.g., divide and separate shapes, use tessellations, determine two-dimensional patterns (nets) that can be folded into three-dimensional shapes. (sample question 39)</p>	<p><u>Looking for Pythagoras</u>            Investigation 2: Finding Areas and Lengths, 17-26            Investigation 3: The Pythagorean Theorem, 27-40            Investigation 4: Using the Pythagorean Theorem, 41-52</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 5: Painted Cubes, 71-84</p> <p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>            Investigation 1: Three Types of Symmetry, 5-23            Investigation 2: Symmetry Transformations, 24-41            Investigation 3: Transforming Coordinates, 42-58            Investigation 4: Symmetry and Algebra, 59-70</p>

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<p>¥ Identify properties of parallel, perpendicular, and intersecting lines and their resulting angles. (sample question 37)</p>	<p><u>Looking for Pythagoras</u>            Investigation 1: Locating Points, 5-16            Investigation 6: Rational and Irrational Slopes, 64-72</p> <p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>            Investigation 3: Transforming Coordinates, 42-58            Investigation 4: Symmetry and Algebra, 59-70</p>
<p>¥ Identify and use transformations, e.g., translations, rotations, reflections of objects and of figures on the coordinate plane. (sample question 36)</p>	<p><u>Kaleidoscopes, Hubcaps, and Mirrors</u>            Investigation 1: Three Types of Symmetry, 5-23            Investigation 2: Symmetry Transformations, 24-41            Investigation 3: Transforming Coordinates, 42-58            Investigation 4: Symmetry and Algebra, 59-70</p>
<p>¥ Explain the concepts of pi and the pythagorean theorem.</p>	<p><u>Looking for Pythagoras</u>            Investigation 3: The Pythagorean Theorem, 27-40            Investigation 4: Using the Pythagorean Theorem, 41-52</p> <p><u>Say It with Symbols</u>            Investigation 1: Order of Operations, 5-19</p>

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<b>Measurement (substrand)</b>	
<p>¥ Use appropriate tools to measure with reasonable accuracy and apply those measurements.</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46</p> <p><u>Looking for Pythagoras</u>            Investigation 1: Locating Points, 5-16            Investigation 2: Finding Areas and Lengths, 17-26</p>
<p>¥ Estimate length, capacity, weight, and mass. (sample question 41)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 4: What is a Quadratic Function?, 52-70</p>
<p>¥ Use concepts of accuracy, precision, and error of measurement, e.g., Determine reasonable units to use in measuring a wall for the purpose of buying a baseboard or, by contrast, for the purpose of determining the length of baseboard to cut for installation. (sample question 40)</p>	<p><u>Thinking with Mathematical Models</u>            Investigation 1: Linear Models, 5-25            Investigation 2: Nonlinear Models, 26-36            Investigation 3: More Nonlinear Models, 37-46</p> <p><u>Looking for Pythagoras</u>            Investigation 1: Locating Points, 5-16            Investigation 2: Finding Areas and Lengths, 17-26</p>

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¥ Convert units of length, capacity, weight, and time within either the metric system of the customary system. (sample question 43)	<u>Looking for Pythagoras</u> Investigation 6: Rational and Irrational Slopes, 64-72 <u>Growing, Growing, Growing</u> Investigation 1: Exponential Growth, 5-16 Investigation 4: Exponential Decay, 45-60 <u>Frogs, Fleas, and Painted Cubes</u> Investigation 3: Quadratic Patterns of Change, 41-51 <u>Say It with Symbols</u> Investigation 5: Writing Expressions for Surface Area, 65-70 <u>Samples and Populations</u> Investigation 4: Solving Real-World Problems, 49-62
¥ Solve problems involving rates. (sample question 42)	<u>Looking for Pythagoras</u> Investigation 6: Rational and Irrational Slopes, 64-72 <u>Growing, Growing, Growing</u> Investigation 1: Exponential Growth, 5-16 Investigation 4: Exponential Decay, 45-60 <u>Frogs, Fleas, and Painted Cubes</u> Investigation 3: Quadratic Patterns of Change, 41-51 <u>Samples and Populations</u> Investigation 4: Solving Real-World Problems, 49-62

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<b>Geometric Measurement (strand)</b>	
¥ Estimate measure of angles.	<u>Kaleidoscopes, Hubcaps, and Mirrors</u> Investigation 1: Three Types of Symmetry, 5-23 Investigation 2: Symmetry Transformations, 24-41
¥ Estimate areas of irregular figures using grids or rulers.	<u>Looking for Pythagoras</u> Investigation 2: Finding Areas and Lengths, 17-26
¥ Find perimeter, circumference, area, surface area, and volume. (sample question 44)	<u>Looking for Pythagoras</u> Investigation 2: Finding Areas and Lengths, 17-26 <u>Growing, Growing, Growing</u> Investigation 1: Exponential Growth, 5-16 Investigation 4: Exponential Decay, 45-60 <u>Frogs, Fleas, and Painted Cubes</u> Investigation 3: Quadratic Patterns of Change, 41-51 <u>Say It with Symbols</u> Investigation 5: Writing Expressions for Surface Area, 65-70

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<p>¥ Apply the concepts and formulas for perimeter, circumference, area, surface area, and volume to solve problems, e.g., Determine the volume of any cube when the lengths of its edge are doubled. (sample questions 45, 47)</p>	<p><u>Looking for Pythagoras</u>            Investigation 2: Finding Areas and Lengths, 17-26</p> <p><u>Growing, Growing, Growing</u>            Investigation 1: Exponential Growth, 5-16            Investigation 4: Exponential Decay, 45-60</p> <p><u>Frogs, Fleas, and Painted Cubes</u>            Investigation 3: Quadratic Patterns of Change, 41-51</p> <p><u>Say It with Symbols</u>            Investigation 5: Writing Expressions for Surface Area, 65-70</p>
<p>¥ Solve problems involving indirect measurements, e.g., Problems requiring use of the pythagorean theorem and similar triangles. (sample question 46)</p>	<p><u>Looking for Pythagoras</u>            Investigation 3: The Pythagorean Theorem, 27-40            Investigation 4: Using the Pythagorean Theorem, 41-52</p>

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<b>STRAND 4: STATISTICS AND PROBABILITY</b>	
<b>Statistics</b>	
<p>¥ Read and interpret data from bar, line, and circle graphs, pictographs, and scatter plots. (sample question 50)</p>	<p><u>Thinking with Mathematical Models</u>                      Investigation 1: Linear Models, 5-25                      Investigation 2: Nonlinear Models, 26-36                      Investigation 3: More Nonlinear Models, 37-46                      Investigation 4: A World of Patterns, 47-59</p> <p><u>Samples and Populations</u>                      Investigation 1: Comparing Data Sets, 5-23                      Investigation 2: Conducting Surveys, 24-36                      Investigation 3: Random Samples, 37-48                      Investigation 4: Solving Real-World Problems, 49-62</p>
<p>¥ Draw conclusions and evaluate arguments based on data presented in tables, charts, graphs, and advertisements. (sample question 49)</p>	<p><u>Thinking with Mathematical Models</u>                      Investigation 1: Linear Models, 5-25                      Investigation 2: Nonlinear Models, 26-36                      Investigation 3: More Nonlinear Models, 37-46                      Investigation 4: A World of Patterns, 47-59</p> <p><u>Samples and Populations</u>                      Investigation 1: Comparing Data Sets, 5-23                      Investigation 2: Conducting Surveys, 24-36                      Investigation 3: Random Samples, 37-48                      Investigation 4: Solving Real-World Problems, 49-62</p>

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<p>¥ Design surveys, e.g., How the sample should be chosen, what questions should be asked, how the data should be aggregated and reported.</p>	<p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 2: Conducting Surveys, 24-36            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p>
<p>¥ Construct graphs appropriate to the type of data to be represented. (sample question 48)</p>	<p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 2: Conducting Surveys, 24-36            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p>
<p>¥ Compute and interpret mean, median, mode, and range of sets of data, and draw and justify conclusions based on these statistics. (sample question 51)</p>	<p><u>Samples and Populations</u>            Investigation 1: Comparing Data Sets, 5-23            Investigation 4: Solving Real-World Problems, 49-62</p>

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<b>Probability</b>	
<p>¥ Determine the number of possible combinations in different types of situations, e.g., Find the number of different ways acts in a talent show can be present.</p>	<p><u>Samples and Populations</u>            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p> <p><u>Clever Counting</u>            Investigation 1: Counting Possibilities, 5-14            Investigation 2: Opening Locks, 15-26            Investigation 3: Networks, 27-36            Investigation 4: Deciding Whether Order Is Important, 37-46            Investigation 5: Wrapping Things Up, 47-56</p>
<p>¥ Construct the set of all possible outcomes (sample space) and determine theoretical probabilities in given situations. (sample questions 52, 54)</p>	<p><u>Samples and Populations</u>            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p> <p><u>Clever Counting</u>            Investigation 1: Counting Possibilities, 5-14            Investigation 2: Opening Locks, 15-26            Investigation 3: Networks, 27-36            Investigation 4: Deciding Whether Order Is Important, 37-46            Investigation 5: Wrapping Things Up, 47-56</p>
<p>¥ Determine empirical probabilities based on given data. (sample question 53)</p>	<p><u>Samples and Populations</u>            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p> <p><u>Clever Counting</u>            Investigation 2: Opening Locks, 15-26            Investigation 4: Deciding Whether Order Is Important, 37-46</p>

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<p>¥ Make predictions and draw conclusions based on counting procedures and probability. (sample question 55)</p>	<p><u>Samples and Populations</u>            Investigation 3: Random Samples, 37-48            Investigation 4: Solving Real-World Problems, 49-62</p> <p><u>Clever Counting</u>            Investigation 1: Counting Possibilities, 5-14            Investigation 2: Opening Locks, 15-26            Investigation 3: Networks, 27-36            Investigation 4: Deciding Whether Order Is Important, 37-46            Investigation 5: Wrapping Things Up, 47-56</p>

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