A Comprehensive Approach to Balanced Mathematics

MATHEMATICS PLANNING FOR SEVENTH GRADE
2010 Edition

7

NYC™

Department of Education

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Teaching with *Impact Mathematics*

As you move through this document and the Impact materials, you will note many recurring themes and underlying programmatic structures that will support your classroom teaching:

A. The Grades 6 through 8 program is a comprehensive curriculum that completes a full year of algebra by the end of Grade 8.

B. Impact Mathematics is a standards-based, integrated curriculum that includes strands on number and operations, proportional reasoning, geometry, probability and data, with a focus on the development of algebraic thinking.

C. There is a balance of basic skills and conceptual understanding; students build new mathematical ideas and at the same time practice needed procedures.

D. The curriculum is centered around problem sets that students work on individually or in groups. Many of the problems are open-ended, allowing students to choose or develop solution strategies.

E. Students are asked to make conjectures based on patterns they observe and to develop convincing mathematical arguments.

F. Impact Mathematics provides opportunities for students to reflect upon, critique and communicate their ideas.

G. The concepts in each chapter connect to and build on concepts developed in earlier chapters and courses.

H. There is an emphasis on a variety of mathematical representations, as well as modeling.

I. Informal to formal development of concepts makes mathematics accessible and appropriate for middle grades students.

J. There is strong content progress from grade to grade with minimal reteaching of topics. Important topics are revisited in greater depth and formality.

K. The contexts used for developing concepts and practicing skills include real-world applications, as well as mathematical settings.

L. To maintain students' ongoing interest in all areas of mathematics, Impact Mathematics uses narrative and realistic contexts, personalization in the form of cartoons in which middle grades students explain how they approach problems, and opportunities for students to choose or create their own problems.

M. Manipulatives and calculators are used to support the content learning only when appropriate. Students need and gain experiences with pencil and paper along with graphing technology.

N. The teaching process is designed around a three-step instructional cycle: Introduce, Develop, and Assign & Assess.

O. The curriculum balances structured learning, direct instruction, and creative problem-solving. Student discovery plays as significant a role in the learning process as teacher-directed instruction.

P. Assessment tools are broad, encompassing the processes of problem solving, reasoning, communication, connections, concepts, applications, representational strategies and procedures.

PACING	IMPACT TEXTBOOK		NEW YORK STATE MATHEMATICS STANDARDS	NOTES
	D&U: Develop & Understand **E: Explore Ex: Example** **IYOW: In Your Own Words** **PS: Problem Set** **QQ: Quick Quiz** **S&S: Share and Summarize**	**QR: Quick Review Math Handbook** **CRM: Chapter Resource Masters** **SKILLS INTERVENTION**		**N: Notes** **LP: Links to the Past** **LC: Literature Connections** **CC: Computer Connections**

CHAPTER 1: EXPRESSIONS

Algebraic Representations: Tables and Graphs—Develop
Algebraic Reasoning: Patterns and Numeric Forms—Develop; Properties and Rules—Develop
Functions and Relations: Linear Expressions & Equations—Develop
Algorithms and Operations: Fractions—Review and Extend

<table>
<tr><td rowspan="1">WEEK 1-2</td><td>

<u>Administer Course 2 Pretest</u>
CRM: Chapter 1, pp. 38-42

1.1 Variables and Expressions
• To match expressions and situations.
• To understand the order of operations.
• To use formulas and evaluate expressions.
• Solve equations using backtracking
Suggested Per Period Pacing:
1. T&D, p. 4; Investigation 1:D&U:A, p. 5; Ex, p. 5; D&U:B, p. 6;
2. D&U:C, pp.7-8; S&S, p. 8.
3. Investigation 2 :D&U:A, p. 9; D&U:B, pp.10-11; S&S, p. 12.
4. Investigation 3: T&D, pp. 13-14 ; D&U:A, p. 14;
5. Ex, p. 15; D&U:B, p. 15; D&U:C, p. 16; S&S, p. 17.
6. Investigation 4: D&U:A, pp.17-19; D&U:B, p. 19; D&U:C, p. 20; S&S, p. 20.
7. IYOW, p. 29, #38; QQ, p. 29 TE

(continued)

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For students who have difficulty with Course 2 Pretest:

Refer to Course 2 Pretest Auxiliary Support Materials, found on page 2 of this book.

For additional practice or homework:

QR
1.3: Order of Operations, p. 74
5.1: Writing Expressions and Equations, p. 228
5.2: Simplifying Expressions, p. 242.
5.3: Evaluating Expressions and Formulas, p.244
5.4: Solving Linear Equations, p. 250.

CRM:
Course Pretest, pp. 3-6
Leveled Lesson Resources: pp. 21-25

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PROBLEM SOLVING STRAND
Students will build new mathematical knowledge through problem solving.
7.PS.3   Understand and demonstrate how written symbols represent mathematical ideas.

Students will solve problems that arise in mathematics and in other contexts.
7.PS.6   Represent problem situations verbally, numerically, algebraically, and graphically.

Students will apply and adapt a variety of appropriate strategies to solve problems.
7.PS.9   Work backwards from a solution.

NUMBER SENSE AND OPERATIONS STRAND
Students will understand meanings of operations and procedures, and how they relate to one another.
7.N.11   Simplify expressions using order of operations.
Note: Expressions may include absolute value and/or integral exponents greater than 0.

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LP:
Course 1
3.2: Patterns pp. 120-125
3.3: Translate Words Into Symbols pp. 163-165
7.1: Squares, pp. 402-404
9.2: Backtracking, Investigation 1, pp. 547-549; Investigation 2, pp. 550-551

LC:
The Case of the Mystery Weekend
by David Connell

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WEEK 1-2 (continued)	**Note:** The recommended pacing is based on the mandated 375 minutes or seven to eight 45-60 minute periods per week. **Note:** Quick Quizzes and Pre-chapter Assessments can be found in Impact Assessment Resources, Volumes A and B.		**ALGEBRA STRAND** *Students will represent and analyze algebraically a wide variety of problem solving situations.* 7.A.1 Translate two-step verbal expressions into algebraic expressions. 7.A.8: Create algebraic patterns using charts/tables, graphs, equations, and expressions.	

grade 7

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WEEK 2-3	**1.2 Expressions and Formulas** • To use variables to write expressions and solve problems. • To develop and use formulas to find specific quantities. *Suggested Per Period Pacing:* 8. T&D, pp. 30-31;Investigation 1:D&U:A, pp.32-33. 9. Ex, p. 33; D&U: B, pp. 33–34; S&S, p. 34; D&U:B, pp.33-34; S&S, p. 36; 10. Investigation 2: T&D, p. 35; Ex, p. 36; D&U:A, pp. 36-37 11. Investigation 2:* D&U:B, pp. 38-39; S&S, p. 39. 12. Investigation 3: Inquiry, pp.40-42 13. IYOW, p. 48, #19; QQ, p. 48 TE **Note:** Computer with spreadsheet software is suggested for the Inquiry Investigation. *Calculator use is suggested	*For additional practice or homework:* **QR** 5.1: Writing Expressions and Equations, p. 228. 5.3: Evaluating Expressions and Formulas, p. 245. 8.4: Spreadsheets, pp. 386-392. **CRM:** Leveled Lesson Resources, pp. 27-32	**NUMBER SENSE AND OPERATIONS STRAND** *Students will understand the meanings of operations and how they relate to one another.* 7.N.12 Add, subtract, multiply, and divide integers. **GEOMETRY STRAND** *Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.* 7.G.1 Calculate the radius or diameter, given the circumference or area of a circle. *Students will identify and justify geometric relationships, formally and informally.* 7.G.7 Find the missing angle when given angles of a quadrilateral. **ALGEBRA STRAND** *Students will represent and analyze algebraically a wide variety of problem solving situations.* 7.A.1 Translate two-step verbal expressions into algebraic expressions. *Students will perform algebraic procedures accurately.* 7.A.6 Evaluate formulas for given input values (surface area, rate, and density problems) *(continued)*	**LP:** **Course 1** 3.3: Translate Words Into Symbols, pp. 163-165. 9.2: Backtracking, Investigation 2, pp. 550-551 Investigation 3, pp. 552-555.

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WEEK 2-3 (continued)			**MEASUREMENT STRAND** *Students will determine what can be measured and how, using appropriate methods and formulas.* 8.M.1 Solve equations/proportions to convert to equivalent measurements within metric and customary measurement systems. **Note:** Also allow Fahrenheit to Celsius, and vice versa. This concept is introduced in Grade 7 to prepare students for later mastery.	

grade 7

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WEEK 3-4	**1.3 The Distributive Property** To understand and apply the distributive property. *Suggested Per Period Pacing:* 14. T&D, p. 49; Investigation 1: D&U:A, pp. 51-52; S&S, p. 52. 15. Investigation 2: Ex, p. 54; D&U:A, p. 55; S&S, p. 55. 16. Investigations 3; D&U:A, pp. 56-57. 17. Ex, p. 57;Ex, p. 58 D&U, p. 59; S&S, p. 59. 18. Investigation 4: D&U:A, pp. 60-61; Ex, p. 61; T&D, p. 61; Ex, p. 62; D&U:B, p. 62; S&S, p. 62 19. IYOW, p. 68, # 45; QQ, p. 68 TE.	*For additional practice or homework:* **QR** 1.1: Properties 5.2: Simplifying Expressions, pp. 238-240. 5.4: Solving Linear Equations, p. 257. **CRM** Leveled Lesson Resources, pp. 33-37 *Standardized test review:* **QR** 1.3: Factors and Multiples, pp. 76-84	**PROBLEM SOLVING STRAND** *Students will monitor and reflect on the process of mathematical problem solving.* 7.PS.17 Evaluate the efficiency of different representations of a problem. **NUMBER SENSE AND OPERATIONS STRAND** *Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.* 7.N.8 Find the common factors and greatest common factor of two or more numbers. *Students will use representations to model and interpret physical, social, and mathematical phenomena.* 7.N.9 Determine multiples and least common multiple of two or more numbers. **ALGEBRA STRAND** *Students will represent and analyze algebraically a wide variety of problem solving situations.* 7.A.1 Translate two-step verbal expressions into algebraic expressions. *(continued)*	**LP:** **Course 1** 9.2: Backtracking: Investigation 1, pp. 547-549 **N:** Game: What's My Rule

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WEEK 4			*Students will perform algebraic procedures accurately.* 7.A.2 Add and subtract monomials with exponents of one 7.A.3 Identify a polynomial as an algebraic expression containing one or more terms 7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation. 7.A.6 Evaluate formulas for given input values (surface area, rate, and density problems). *Students will recognize, use and represent algebraically patterns, relations, and functions.* 7.A.10 Write an equation to represent a function from a table of values (MAY–JUNE in Grade 7).	

Review and Self-Assessment
Suggested Per Period Pacing:

20. Review and Self-Assessment, pp. 69-71
21. Continue Review and Self-Assessment; Chapter 1 Test.   **CRM:** MARS Assessment: Differences, pp. 58-62.

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CHAPTER 2: EXPONENTS

Algebraic Reasoning: Patterns and Numeric Forms—Develop; Properties and Rules–Develop

Functions and Relations: Linear Expressions/Equations–Apply

Numbers and Number Sense: Whole Numbers—Develop; Exponents and Roots–Develop

WEEK 5-6	Administer Pre-Chapter Two Pretest **2.1 Factors and Multiples** Understanding and applying concepts related to factors and multiples. *Suggested Per Period Pacing:* 22. T&D, p. 74; Investigation 1: D&U:A, p.75; D&U:B, p. 76; D&U:C, p. 76; S&S, p. 77. 23. Investigation 2: D&U: A, pp. 77-78; Ex, p. 78; D&U: B, p. 79; S&S, p. 79. 24. Investigation 3: E, p. 80; D&U:A, p. 81; Ex, p. 81:D&U:B, p. 82; S&S, p. 82. 25. Investigation 4: D&U:A, p. 83; Ex, p. 83; D&U:B, p. 84. 26. D&U:C, pp. 84-85; S&S, p. 85; IYOW, p. 91 #40; QQ, p. 91 TE.	**CRM:** Chapter 2 Pretest, pp. 23-26. *For additional practice or homework:* **Skills Intervention Workbook** Skill 17: pp. 33–40. **QR** 1.4: Factors and Multiples, pp. 76-82 **CRM:** Leveled Lesson Resources, pp. 3-7	**NUMBER SENSE AND OPERATIONS STRAND** *Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.* 7.N.8 Find the common factors and greatest common factors of two or more numbers. 7.N.9 Determine multiples and least common multiple of two or more numbers. 7.N.10 Determine the prime factorization of a given number and write in exponential form.	**LP:** **Everyday Math,Grade 5** 1.9: Factor Strings and Prime Factorizations 12.1: Factor trees **LP:** **Impact Math Course 1** 3.1: Investigation 2, pp. 113-116 **LC** *Math Curse* by Jon Scieszka and Lane Smith

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WEEK 6	**2.2 Exponent Machines** • To model the behavior of exponents using stretching and shrinking machines. • To understand and apply the product laws of exponents. *Suggested Per Period Pacing:* 27. T&D, p.92, Investigation 1:D&U:A, p. 93; D&U:B, p. 94; D&U: C, p. 95; S&S, p. 96. 28. Investigation 2: T&D, p. 96; Ex, p. 97; D&U:A, p.97; Ex, p. 98; D&U:B, p. B 29. Ex, p. 99; D&U:C, p. 100; S&S, p. 100 30. Investigation 3: D&U:A, pp. 100-101; Ex, p. 101; D&U:B, p. 102; D&U:C, p. 103; S&S, p. 103; IYOW, p. 106, #46; QQ, p.106 TE	*For additional practice or homework:* **QR** 3.1: Powers and Exponents, p.160 **CRM:** Leveled Lesson Resources, pp. 13-17	**NUMBER SENSE AND OPERATIONS STRAND** *Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.* 7.N.4 Develop the laws of exponents for multiplication and division. *Students will understand meanings of operations and procedures, and how they relate to one another.* 7.N.11 Simplify expressions using order of operations.	**LP:** **Course 1** 3.2: Investigation 4: Find the Rule, pp. 133-135

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WEEK 7-8	**2.3 More Exponent Machines** • To model the behavior of exponents using division machines with exponents • To understand and apply the quotient laws of exponents. • To understand and apply the power of a power law of exponents. *Suggested Per Period Pacing:* 31. T&D, p. 107; Investigation 1: D&U:A, pp. 107-108; S&S, p. 108. 32. Investigation 2: Ex, p. 109; D&U:A, p. 109 33. Ex, p. 110; D&U:B, p. 110; S&S, p. 110. 34. Investigation 3: T&D, p. 111; D&U:A, pp. 111-112; Ex, p. 112; D&U:B, p. 113; S&S, p. 113. 35. [*Suggested: Investigation 4: Inquiry, pp. 114-116]; IYOW, p. 119, #50; QQ, p. 119 TE	*Standardized test review:* **Skills Intervention for Pre-Algebra** Skill 8: Prime Factorization, pp. 15-16. **QR** 3.1: Powers and Exponents, p. 160 **CRM:** Leveled Lesson Resources, pp. 18-22	**PROBLEM SOLVING STRAND** *Students will build new mathematical knowledge through problem solving.* 7.PS.3 Understand and demonstrate how written symbols represent mathematical ideas. **REASONING AND PROOF STRAND** *Students will select and use various types of reasoning and methods of proof.* 7.RP.6 Support an argument by using a systematic approach to test more than one case. **NUMBER SENSE AND OPERATIONS STRAND** *Students will understand numbers, multiple ways of representing numbers, relationships among numbers and number systems.* 7.N.4 Develop the laws of exponents for multiplication and division. *Students will understand meanings of operations and procedures, and how they relate to one another.* 7.N.14 Develop a conceptual understanding of negative and zero exponents with a base of ten and relate to fractions and decimals.	**LP:** **Course 1** 3.1: Investigation 2: Exponents, pp. 113-116.

Review and Self-Assessment
Suggested Per Period Pacing:
36. Review and Self-Assessment, pp. 120-123.
37. Continue Review and Self-Assessment; Chapter 2 Test.   **CRM:** MARS Assessment**:** Aunt Mabel, pp. 37-39.

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CHAPTER 3: SIGNED NUMBERS

Algebraic Representations: Coordinate Graphs—Develop; Tables and Graphs—Develop

Algebraic Reasoning: Patterns and numeric forms—Develop

Number and Number Sense: Whole Numbers, Signed Numbers—Apply

Rationals and Irrationals: **Fraction and Decimal Concepts-Apply**

Algorithms and Operations: Fractions, Decimals, Signed Numbers—Apply

WEEK 8-9			
<u>Administer Chapter Three Pre-Test</u> **3.1 Add and Subtract Negative Numbers** To add and subtract signed numbers *Suggested per period pacing:* 38. p. 218; T&D, p. 127; Investigation 1: T&D, p. 128; D&U:A, pp. 128-129; Ex, p. 129; D&U:B, p. 130; Ex, p.130; 39. D&U:C, p.130; S&S, p. 130; *Inquiry* Investigation 2: pp. 131-133 40. Investigation 3: 134-136; T&D, p. 136; D&U:A, p. 137; Ex, p. 138; D&U:B, p. 139; S&S, p. 139 41. Investigation 4: T&D, p. 140; D&U:A, pp. 140-141; T&D:B, p. 142; S&S, p. 142 42. Investigation 5: D&U:A, pp. 143-144; D&U:B, p. 144 43. T&D, p. 145; D&U:C, p. 145; S&S, p. 145; Investigation 6: D&U:A, p. 146 44. D&U:B, pp. 146-147; S&S, p. 147; IYOW, p. 153, # 68; QQ, p. 153 TE	**CRM:** Chapter 3 Pre-Test, pp. 21-24. *For additional practice or homework:* **QR** 1.5: Integer Operations, p. 85. 5.6: Inequalities, p. 266. **Skills Intervention for Pre-Algebra** Skill 5: Integers, pp. 9-10. Skill 6: Adding and Subtracting Integers, pp. 11-12. **CRM:** Leveled Lesson Resources, pp. 6-10	**NUMBER SENSE AND OPERATIONS STRAND** *Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.* 7.N.3 Place rational and irrational numbers (approximations) on a number line and justify the placement of the numbers. *Students will understand meanings of operations and procedures, and how they relate to one another.* 7.N.12 Add, subtract, multiply and divide integers 7.N.13 Add and subtract two integers (with and without the use of a number line). *Students will comopute accurately and make reasonable estimates* 7.N.19 Justify the reasonableness of answers using estimation. *(continued)*	**LP:** **Course 1** 4.1: Adding and Subtracting Fractions, pp. 198-210. 9.1: Celsius to Kelvin Temperature Conversion, p. 545, #33 **QR:** **Book 1** 2.6: Decimal Operations **LC** *The Man Who Counted: A Collection of Mathematical Adventures* by Malba Tahan

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WEEK 8-9 (continued)	*Expand the amount of work done involving inequalities.		**ALGEBRA STRAND** ***Students will perform algebraic procedures accurately*** 7.A.5 Solve one-step inequalities (positive coefficients only). **GEOMETRY STRAND** ***Students will apply coordinate geometry to analyze problem solving situations*** 7.G.10 Graph the solution set of an inequality (positive coefficients only) on a number line	

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WEEK 9-10	**3.2 Multiply and Divide with Negative Numbers** To multiply and divide with signed numbers. *Suggested Per Period Pacing* 45. Ex, p. 154; Investigation 1: D&U:A, p. 155; T&D, p. 243;D&U:B, (odd numbers) p. 155; D&U:C, (odd numbers) p. 156. 46. D&U:B, (even numbers) p. 155; D&U:C, (even numbers) p. 156, S&S, p. 156; Investigation 2: D&U:A*, p. 157 47. T&D, p. 157; D&U:B, p. 158; Ex, p. 158; D&U:C, p. 159; S&S, p. 159. 48. Investigation 3: D&U:a, p. 160; T&D, p. 160; D&U:B, p. 161; S&S, p. 161 49. Investigation 4: T&D, p. 162; D&U:A, pp. 162-163; D&U:B, p. 163. 50. T&D, pp. 163-164; S&S, p.164; IYOW, p. 168, #60; QQ, p. 168. **Note:** To meet standards 7.N.1 and 7.N.2, page 160 TE must be done and extended to include all the subsets of numbers listed in 7.N.1 and to classify irrational numbers as non-repeating/ non-terminating decimals. *Calculator use is suggested	*For additional practice or homework:* **QR** 1.5: Integer Operations, p. 92. 4.4: Statistics, p. 210. **Skills Intervention for Pre-Algebra** Skill 7: Multiplying and Dividing Integers, pp. 13-14. **CRM:** Leveled Lesson Resources pp. 19-23 *Suggested test review:* **QR** 3.2: Square root, p. 166.	**NUMBER SENSE AND OPERATIONS STRAND** *Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.* 7.N.1 Distinguish between the various subsets of real numbers (counting/natural numbers, whole numbers, integers, rational numbers, and irrational numbers). 7.N.2 Recognize the difference between rational and irrational numbers (e.g., explore different approximations of). *Students will understand meanings of operations and procedures, and how they relate to one another.* 7.N.12 Add, subtract, multiply, and divide integers. 7.N.15 Recognize and state the value of the square root of a perfect square (up to 225). 7.N.17 Classify irrational numbers as non-repeating/non-terminating decimals. *Students will compute accurately and make reasonable estimates.* 7.N.19 Justify the reasonableness of answers using estimation. *(continued)*	**LP:** **Course 1** 4.2: Multiplying and Dividing with Fractions, pp. 216-233. 4.3: Multiplying and Dividing with Decimals, pp. 242-257.

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WEEK 9-10 (continued)			**ALGEBRA STRAND** *Students will perform algebraic procedures accurately.* 7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation . 7.A.6 Evaluate formulas for given input values (surface area, rate, and density problems). **STATISTICS AND PROBABILITY STRAND** *Students will collect, organize, display and analyze data* 7.S.4 Calculate the range for a given set of data.	

Review and Self-Assessment

Suggested Per Period Pacing:

50. Review and Self-Assessment, pp. 169-171

51. Continue Review and Self-Assessment; Chapter 3 Test   **CRM**: MARS Assessment, Integers, pp. 35-38

PACING

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SKILLS INTERVENTION

NEW YORK STATE MATHEMATICS STANDARDS

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CHAPTER 4: MAGNITUDE OF NUMBERS
Algebraic Representations: Tables and Graphs-—Apply
Algebraic Reasoning: Patterns and Numeric Forms—Develop; Properties and Rules—Develop
Number and Number Sense: Whole Numbers—Apply;Signed Numbers-Apply; Exponents and Roots—Develop
Rationals and Irrationals: Fraction and Decimal Concepts—Apply

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WEEK 11

Administer Chapter Four Pre-Test

4.1 Scientific Notation
- To multiply and divide numbers by powers of 10
- To write numbers using scientific notation

Suggested Per Period Pacing:
52. T&D, p. 174, *Investigation 1: T&D, p. 175; D&U:A, p. 176; D&U:B, p. 177; S&S, p. 177
53. Investigation 2: Ex, p. 178; T&D, p. 179; D&U:A, p. 180; Ex, p. 181; D&U:B, p. 181; S&S, p. 181

Note: Review conversion of equivalent measurements within metric (D&U:A, #6, 9, 10).

*Scientific calculator is suggested.

(continued)

CRM:
Chapter 4 Pre-Test, pp. 13-16

For additional practice or homework:

QR
1.4: Integer Operations, p. 88
3.3: Scientific Notation, pp. 171-173.
7.1: Systems of Measurement, pp. 346-347

Skills Intervention for Pre-Algebra

Skill 54: Metric Units of Measure, pp. 107-108.

CRM:
Leveled Lesson Resources, pp. 3-7

NUMBER SENSE AND OPERATIONS STRAND
Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.
7.N.5   Write numbers in scientific notation.
7.N.6   Translate numbers from scientific notation into standard form.
7.N.7   Compare numbers written in scientific notation.
7.N.10   Determine the prime factorization of a given number and write in exponential form

Students will compute accurately and make reasonable estimates.
7.N.19   Justify the reasonableness of answers using estimation

(continued)

LP:
Course 1
2.2: Patterns in Decimals, pp. 74-84
4.3: Multiplying and Dividing with Decimals, pp. 242-257.

LC:
How Much is a Million by David Schwartz.

If You Made a Million by David Schwartz.

CC:
Web link
www.mathforum.org/dr.math/faq/faq.tower.hanoi.html

PACING	IMPACT TEXTBOOK D&U: Develop & Understand E: Explore Ex: Example IYOW: In Your Own Words PS: Problem Set QQ: Quick Quiz S&S: Share and Summarize	QR: Quick Review Math Handbook CRM: Chapter Resource Masters SKILLS INTERVENTION	NEW YORK STATE MATHEMATICS STANDARDS	NOTES N: Notes LP: Links to the Past LC: Literature Connections CC: Computer Connections
WEEK 11 (continued)	54. Investigation 3: T&D, p. 182; D&U:A, p. 183; D&U:B, p. 183; D&U:C, p. 184; S&S, p. 184 55. *Inquiry Investigation 4: pp. 185-187 56. IYOW, p. 193; QQ, p. 193. *Lab investigation is optional, but provides review of work with patterns.		**MEASUREMENT STRAND** Students will develop strategies for estimating measurements. 7.M.10 Identify the relationships between relative error and magnitude when dealing with large numbers (e.g. money, population) *Students will determine what can be measured and how, using appropriate methods and formulas.* 8.M.1 Solve equations/proportions to convert to equivalent measurements within metric and customary measurement systems. **Note:** These concepts are introduced in Grade 7 to prepare students for later mastery.	

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	IMPACT TEXTBOOK *D&U: Develop & Understand* *E: Explore Ex: Example* *IYOW: In Your Own Words* *PS: Problem Set* *QQ: Quick Quiz* *S&S: Share and Summarize*	**QR:** *Quick Review Math Handbook* **CRM:** *Chapter Resource Masters* *SKILLS INTERVENTION*	***NEW YORK STATE MATHEMATICS STANDARDS***	**NOTES** **N:** **Notes** **LP:** **Links to the Past** **LC:** **Literature Connections** **CC:** **Computer Connections**

| WEEK 12-13 | **4.2 Negative Exponents**
• To relate negative exponents to both multiplication by fractions and repeated division.
• To evaluate simple expressions with negative exponents.
• To apply laws of exponents to expressions with negative exponents.
• To write numbers in scientific notation with negative exponents.

57. T&D, p. 194; Investigation 1: D&U:A, p.195;T&D, p. 195; D&U:B, pp. 196-197; S&S, p. 198

58. Investigation 2: Ex, p. 198; D&U:A, p. 199; D&U:B, p. 199; S&S, p. 199

59. Investigation 3; D&U:A, p. 200; D&U:B, p. 201; S&S, p. 201

60. IYOW, p. 205,#74; QQ, p. 206 TE. | *For additional practice or homework:*

QR
1.4   Integer Operations, pp. 85-89.

Skills Intervention for Pre-Algebra
Skill 21: Powers and Exponents, pp. 41-42

CRM:
Leveled Lesson Resources, pp. 8-12 | **NUMBER SENSE AND OPERATIONS**
Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.
7.N.5   Write numbers in scientific notation.
7.N.6   Translate numbers from scientific notation into standard form.
7.N.7   Compare numbers written in scientific notation.

Students will understand meanings of operations and procedures, and how they relate to one another.
7.N.14   Develop a conceptual understanding of negative and zero exponents with a base of ten and relate to fractions and decimals (e.g., $10^{-2}= .01 = 1/100$) | **LP:**
Course 1
4.3: Multiplying and Dividing with Decimals, pp. 251-254

LP:
Course 2
2.2: Exponent Machines, pp. 92-106
2.3: More Exponent Machines, pp. 107-116. |

Review and Self-Assessment
61. Review and Self- Assessment, pp. 207-209
62   Test Chapter 4.   **CRM:** MARS Assessment, Land and Water, pp. 24-27

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CHAPTER 5: GEOMETRY IN THREE DIMENSIONS
Algebraic Representation: Tables and Graphs—Apply
Algebraic Reasoning: Patterns and Numeric Forms—Apply
Two Dimensional Shapes: Polygons—Apply; Quadrilaterals-Apply; Triangles—Apply
Three Dimensional Figures: Spatial Visualization-Develop; 3-D Solids—Develop
Measurement: Perimeter and Area—Apply; Surface Area and Volume—Develop

WEEK 13-14				
	<u>Administer Chapter Five Pre-Test</u> **5.1 Surface Area and Volume** • To find the volume of any prism as area of base times height. • To understand that for a given volume of any prism, the cube is the rectangular prism with the minimum surface area. • To find the surface area of a solid. *Suggested Per Period Pacing:* 63. T&D, p. 212; Investigation 1: T&D, p. 213; D&U:A, pp. 213-4; D&U:B, p. 214. 64. T&D, p. 215; D&U:C, p. 215; S&S, p. 215 65. Investigation 2: D&U:A, pp. 216-217; T&D, p. 218; D&U:B, pp. 218-219; S&S, p. 219 *(continued)*	**CRM:** Chapter 5 Pretest, p. 29 *For additional practice or homework:* **QR** 6.6: Surface Area, pp. 324-326. 6.7: Volume, pp. 328-329 **CRM:** Leveled Lesson Resources, pp. 3-7	**GEOMETRY STRAND** *Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.* 7.G.2 Calculate the volume of prisms and cylinders, using a given formula and a calculator. 7.G.3 Identify the two-dimensional shapes that make up the faces and bases of three-dimensional shapes (prisms, cylinders, cones, and pyramids). 7.G.4 Determine the surface area of prisms and cylinders, using a calculator and a variety of methods **MEASUREMENT STRAND** *Students will develop strategies for estimating.* 7.M.11 Estimate surface area.	**LP:** **Course 1** 7.3: Surface Area and Volume, Lab Investigation, pp. 441-443. 7.1: Areas and Squares: E, p. 398 Investigation 1, pp. 399-402 7.2 Calculating Areas, pp. 410-426 **LC** *Sir Cumference and the Dragon of Pi* by Cindy Neuschwander

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WEEK 13-14 (continued)	**Note**: Students should know that π is an irrational number and, unless otherwise specified, the π key and the full display of the calculator should be used in computations. <u>**π is not equal to 3.1416, 3.14 nor 22/7.**</u> 66. Investigation 3: Inquiry, pp. 220-222 **Note:** Volume of sphere and cone is optional, p. 222 67. IYOW, p. 226,#17; QQ p. 227TE			

grade 7

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WEEK 14	**5.2 Nets and Solids**
	To find surface area and volume of a solid.
	
	SUGGESTED PER PERIOD PACING:
	68. Ex, p. 228; Investigation 1: D&U:A,
	    pp. 229-230; S&S, p. 230
	69. Investigation 2: Ex,p. 231; D&U:A,
	    pp. 231-232; S&S, p. 233
	70. Investigation 3:D&U:A, p. 233; D&U:B,
	    p. 234; S&S, p. 234
	71. IYOW, p. 238, #20; QQ, p. 239TE
		For additional practice or homework:
		
		Skills Intervention for Pre-Algebra
		Skill 63: pp. 125-126.
		
		QR
		6.6: Surface Area, pp. 324-326
		
		CRM:
		Leveled Lesson Resources,
		  p. 8-12
		
		Standardized test review:
		
		QR
		6.8: Circles, pp. 332-336.
			GEOMETRY STRAND
			7.G.1 Calculate the radius or diameter, given the circumference or area of a circle.
			7.G.2 Calculate the volume of prisms and cylinders, using a given formula and a calculator.
			7.G.3 Identify the two-dimensional shapes that make up the faces and bases of three-dimensional shapes (prisms, cylinders, cones, and pyramids).
			7.G.4 Determine the surface area of prisms and cylinders, using a calculator and a variety of methods
				LP:
				Course 1
				7.1: Areas and Squares:
				    Ex, p. 398 Investigation 1,
				    pp. 399-402
				
				7.2 Calculating Areas,
				    pp. 410-426

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WEEK 15-16	**5.3.Mass and Weight** • To identify differences between mass and weight • Measure mass of an object • Convert between units of mass, weight and metric units of mass and weight *Suggested Per Period Pacing:* 72. T&D, P. 240; Investigation 1: T&D, p. 241; D&U:A, pp. 241-242;D&U:B, pp. 242; 73. T&D, p. 243; D&U:C, pp. 243-244; S&S, p. 244; Investigation 2: D&U:A, p. 244; D&U: B, p. 245 74. D&U:C, pp. 245-246; D&U:D, p. 246; S&S, p. 247; Investigation 3: D&U:A, p. 247-248; 75. D&U:B, pp. 249-250; T&D, p. 250; S&S, p. 250. IYOW, p. 254; QQ, p. 255 TE	*For additional practice or homework:* **QR** 7.4: Mass and Weight, p. 404. **CRM:** Leveled Lesson Resources, p. 24-28 *Standardized test review:* **QR** 7.8: Circles, pp. 332-336.	**MEASUREMENT STRAND** *Students will determine what can be measured and how, using appropriate methods and formulas* 7.M.2 Convert capacities and volumes within a given system 7.M.3 Identify customary and metric units of mass 7.M.4 Convert mass within a given system 7.M.9 Determine the tool and technique to measure with an appropriate level of precision: mass *Students will develop strategies for estimating measurements* 7.M.12 Add, subtract, multiply, and divide integers. 7.M.13 Justify the reasonableness of the mass of an object	

Review and Self-Assessment

76. Review and Self-Assessment, pp. 256-259

77. Test Chapter 5   **CRM:** MARS Assessment, Toothpaste, pp. 44-46

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CHAPTER 6: DATA AND PROBABILITY

Algebraic Representations: Coordinate Graphs—Review and Extend; Tables and Graphs—Develop
Algebraic Reasoning: Properties and Rules—Develop
Data Analysis: Graphs and Displays—Develop; Modeling and Analysis—Develop; Statistical Measures—Develop; Surveys and Sampling—Develop
Probability: Basic Concepts and Rules—Develop; Experiments and Simulations—Develop; Counting Methods—Develop

| WEEK 16–17 | Administer Pre-Chapter Six Test

6.1 Dependence
• To recognize when previous outcomes influence later ones.
• To determine experimental probability

Suggested Per Period Pacing:
78. T&D, p. 666; Investigation 1: (All).
79. Investigation 2 (All).
80. Investigation 3 (All)
81. [Suggested: Inquiry Investigation 4]
82. QQ, p. 277TE. | **CRM:**
Chapter 6 Pretest, p. 23-26.

For additional practice
or homework:

QR
4.1: Collecting Data, pp. 179-184
4.2: Displaying Data, p186.
4.5: Experimental probability, pp. 218-219

CRM:
Leveled Lesson Resources, pp. 3-9

Standardized test review:

(continued) | **STATISTICS AND PROBABILITY STRAND**
Students will collect, organize, display and analyze data.
6.S.2   Record data in a frequency table (MAY–JUNE IN GRADE 6).
7.S.1   Identify and collect data using a variety of methods.

Students will understand and apply concepts of probability.
7.S.8   Interpret data to provide the basis for predictions and to establish experimental probabilities.
7.S.10   Predict the outcome of an experiment | **LP:**
Course 1
10.3: The Language of Chance, pp. 617-632
10.4: Making Matches, pp. 638-645.

N:
Stick or Switch Problem
www.illuminations.nctm.org/LessonDetail.aspx?idL377

LC
Conned Again, Watson?
Cautionary Tales of Logic,
Math, and Probability
by Bruce Colin

Math Trek:
Adventures in Math Zone
by Ivars Peterson and Nancy Henderson |

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WEEK 16–17 (continued)		**Skills Intervention for Pre-Algebra** Skill 75: Counting Outcomes and Tree Diagrams, pp. 149-150. Skill 76: Permutations, pp. 151-152. Skill 78: Probability, pp. 155-156 Skill 79: Theoretical and Experimental Probability, pp. 157-158		

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| WEEK 17 | **6.2 Make Predictions**
• To analyze how appropriate a sample or a sampling process is.
• To make predictions based upon a sample.

Suggested Per Period Pacing:
83. Explore, p. 278; Investigation 1: ALL

84. Investigation 2: ALL

85. Investigation 3: ALL

86. IYOW, p. 291, #16; QQ, p. 293 TE.

Note: Review the different measures of central tendency (mean, median, mode, range) that were introduced in sixth grade. | *For additional practice or homework:*

QR
4.1: Collecting Data, pp. 179-182.

Standardized test review:

QR
1/3: Venn Diagrams, p. 78..

CRM
Leveled Lesson Resources, pp. 10-15.

Skills Intervention for Pre-Algebra
Skill 74: Using Statistics to Make Predictions, pp. 147-148.
Skill 66: Mean, Median, Mode, pp. 131-132.
Skill 67: Frequency Tables, pp. 133-134. | **NUMBER SENSE AND OPERATIONS STRAND**
Students will compute accurately and make reasonable estimates.
7.N.19   Justify the reasonableness of answers using estimation.

STATISTICS AND PROBABILITY STRAND
Students will collect, organize, display, and analyze data
7.S.1   Identify and collect data using a variety of methods

Students will understand and apply concepts of probability.
7.S.8   Interpret data to provide the basis for predictions and to establish experimental probabilities
7.S.9   Determine the validity of sampling methods to predict outcomes.
7.S.11   Design and conduct an experiment to test predictions.
7.S.12   Compare actual results to predicted results. | **LP:**
Course 1
4.4:   What is Typical, pp. 265-275.

10.1: Using Graphs to Understand Data, pp. 578-591.

10.2: Collect and Analyzing Data, pp. 601-610.

10.3: The Language of Chance, pp. 617-632. |

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| WEEK 18-19 | **6.3 Data Graphs**
• Collect data effectively
• Identify and construct graphs appropriate to the data given

Suggested Per Period Pacing:
87. T&D, p. 294; Investigation 1: D&U:A, pp. 295-296; D&U:B, p. 296
88. T&D, p. 297; D&U:C, p. 297; D&U:D, p. 298; S&S, p. 298
89. Investigation 2: (All).
90. {Suggested: Investigation 3(All).]
91. Investigation 4:(All); QQ, p. 313TE

Note: Review the different measures of central tendency that were introduced in sixth grade. | *For additional practice or homework:*

QR
4.1: Collecting Data, pp. 179-180.

Standardized test review:

QR
1.3: Venn Diagrams, p. 78

CRM
Leveled Lesson Resources, pp. 16-22

Skills Intervention for Pre-Algebra
Skill 74: Using Statistics to Make Predictions, pp. 147-148.
Skill 67: Frequency Tables, pp. 133-134. | **STATISTICS AND PROBABILITY STRAND**
Students will collect, organize, display, and analyze data.
6.S.1   Develop the concept of sampling when collecting data from a population and decide the best method to collect data for a particular question (MAY–JUNE IN GRADE 6).
6.S.2   Record data in a frequency table (MAY–JUNE IN GRADE 6).
7.S.1   Identify and collect data using a variety of methods.
7.S.2   Display data in a circle graph
7.S.3   Convert raw data into double bar graphs and double line graphs
7.S.5   Select the appropriate measure of central tendency
7.S.6   Read and interpret data represented graphically (pictograph, bar graph, histogram, line graph, double line/bar graphs or circle graphs,)
Students will make predictions that are based upon data analysis
7.S.7   Identify and explain misleading statistics and graphs
MEASUREMENT STRAND
Students will determine what can be measured and how, using appropriate methods and formulas.
7.M.8   Draw central angles in a given circle using | **LP:**
Course 1
4.4: What is Typical, pp. 265-275.
10.1: Using Graphs to Understand Data, pp. 578-591.
10.2: Collect and Analyze Data, pp. 601-610.
10.3: The Language of Chance, pp. 617-632. |

Review and Self-Assessment
92. Review and Self-Assessment, pp. 256-259
93. Test Chapter 6   **CRM**: MARS Assessment: Meals, pp. 39-40

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CHAPTER 7: REAL NUMBERS

Algebraic Reasoning: Properties and Rules-Develop

Two-Dimensional Shapes: Triangles—Develop

Measurement: Perimeter and Area—Develop

Number and Number Sense: Signed Numbers—Develop

Rationals and Irrationals: Fraction and Decimal Concepts—Develop

WEEK 19-20	Administer the Pre-Chapter Seven Test **7.1 Rational Numbers** • Explore relationships between sets of numbers • Use Venn diagrams to represent number sets • Compare and order rational numbers *Suggested Per Period Pacing:* 94. T&D, p. 320; Investigation 1: D&U:A, pp. 320-321; T&D, p. 321; D&U:B, p. 322 95. Investigation 1: T&D, C, pp. 322-323; S&S, p. 323 96. Investigation 2: T&D, p. 324; D&U:A, p. 325 97. T&D, p. 326; D&U:B, p. 327; S&S, p. 327l; IYOW, p. 330, #24; QQ, p. 324 TE	**CRM:** Chapter 7 Pretest, pp. 21-24 *For additional practice or homework:* **QR** 2.9: Fraction, Decimal, and Percent Relationships, pp. 148-153. **CRM:** Leveled Lesson Resources, pp. 4-8. *Standardized test review:* **QR** 1.3: Venn Diagrams, p. 78	**NUMBER SENSE AND OPERATIONS STRAND** *Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems* 7.N.1　Distinguish between the various subsets of real numbers (counting/natural numbers, whole numbers, integers, rational numbers, and irrational numbers) 7.N.3　Place rational and irrational numbers (approximations) on a number line and justify the placement of the numbers	**LP:** **Course 1** 2.3:　Fraction and Decimal Equivalents, pp. 88-101 **LC:** *Sir Cumference and the Great Knight of Angleland: A Math Adventure* by Cindy Neuschwander.

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WEEK 20	**7.2 Irrational Numbers** • Classify rational and irrational numbers • Determine the square root of a number *Suggested Per Period Pacing:* 98. T&D, p. 331; Investigation 1: D&U:A, pp.331-332; T&D, p. 332; T&D, p. 333 99. Ex, p. 334; D&U:B, p. 334; *D&U:C, p. 335; *D&U:D, p. 335; S&S, p. 335. 100. Investigation 2: T&D, p. 336; *D&U:A, pp. 336-337; D&U:B, pp. 337-338; *D&U:C, p. 338. 101. S&S, p. 338.IYOW, p. 341, #35; QQ, p. 342TE *Use of calculator is suggested	*For additional practice or homework:* **QR** 3.1: Powers and Exponents, pp. 160-161 3.2: Square Roots, pp. 166-169 **CRM:** Leveled Lesson Resources, pp. 9-13	**NUMBER SENSE AND OPERATIONS STRAND** *Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems* 7.N.2 Recognize the difference between rational and Irrational numbers (e.g. explore different approximations of π *Students will understand meanings of operations and procedures, and how they relate to one another.* 7.N.15 Recognize and state the value of the square root of a perfect square (up to 225) 7.N.16 Determine the square root of non-perfect squares using a calculator 7.N.17 Classify irrational numbers as non-repeating/non-terminating decimals. *Students will compute accurately and make reasonable estimates.* 7.N.18 Identify the two consecutive whole numbers between which the square root of a non-perfect square whole number less than 225 lies (with and without the use of a number line) 7.N.19 Justify the reasonableness of answers using estimation.	**LP:** **Course 1** 2.3: Fraction and Decimal Equivalents, pp. 88-101 7.1: Squares, pp. 398-404

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WEEK 20-21	**7.3 The Pythagorean Theorem** • Understand the concept of Pythagorean theorem • Use the Pythagorean Theorem to determine the missing side length or hypotenuse length of a right triangle. • Determine and use the distance formula *Suggested Per Period Pacing:* 102. Ex, p. 343; Investigation 1: D&U:A, pp. 343-345 103. D&U:B, p. 346; S&S, p. 347; Investigation 2:D&U:A, p. 348 104. Ex, p. 348; D&U:B, pp. 349-350; S&S, p. 350 105. Inquiry Investigation 3:ALL 106. IYOW, p. 360, #14; QQ, pp. 360 TE.	*For additional practice or homework:* **QR** 5.3: Evaluating Expressions and Formulas, pp. 244-247 6.9: Pythagorean Theorem, pp. 338-341. **CRM:** Leveled Lesson Resources, pp. 14-20.	**GEOMETRY STRAND** *Students will identify and justify geometric relationships, formally and informally.* 7.G.5 Identify the right angle, hypotenuse, and legs of a right triangle. 7.G.6 Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem 7.G.8 Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle 7.G.9 Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem and using a calculator.	**LP:** **Course 1** 1.1: Patterns In Geometry, Investigation 4, pp. 16-17 7.1: Squares, pp. 396-404.

Review and Self-Assessment
107. Review and Self-Assessment, pp. 361-365
108. Test Chapter 7   **CRM:** MARS Assessment: Glass, pp. 37-40

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CHAPTER 9: EQUATIONS

Algebraic Representations: Tables and Graphs—Develop

Algebraic Reasoning: Patterns and Numeric Forms—Develop; Properties and Rules—Develop

Functions and Relations: Linear Expressions/Equations—Develop

Ratios and Rates: Meaning and Representations—Develop

WEEK 22-23

Administer the Chapter Nine Pre-Test

9.1 Find A Solution Method
- To solve linear equations using guess-check-and-improve or backtracking methods.
- To use variables to write algebraic expressions.

Suggested Per Period Pacing
109. T&D, p. 436; T&D, p. 437; Investigation 1: D&U:A, pp. 437-438
110. D&U:B, pp. 438-439; S&S, p. 439
111. [Suggested Inquiry Investigation 2 (All)] ;
112. IYOW, p. 445; QQ, p. 445 (TE).

CRM:
Chapter 9 pretest, pp. 29-32

For additional practice or homework:

Impact Mathematics Refresher Worksheet
#16, p. 20.

QR
5.1: Writing Expressions, p. 232
5.4: Solving Linear Equations, p. 249.

CRM:
Leveled Lesson Resources, pp. 6-11

Standardized test review:
Skills Intervention for Pre-Algebra
Skill 24: Writing Expressions and Equations, pp. 47-48.
Skill 25: Simplifying Expressions and Equations, pp. 49-50.

PROBLEM SOLVING STRAND
Students will apply and adapt a variety of appropriate strategies to solve problems.
7.PS.9 Work backwards from a solution.

ALGEBRA STRAND
Students will represent and analyze algebraically a wide variety of problem solving situations.
7.A.1 Translate two-step verbal expressions into algebraic expressions.

Students will perform algebraic procedures accurately.
7.A.2 Add and subtract monomials with exponents of one
7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation.

LP: Course 1
9.1: Understand Equations, pp. 534-540
9.2: Backtracking, pp. 546-554.
9.3: Guess-Check-Improve, pp. 560-567.

LP: Course 2
1.1: Variables and Expressions, pp. 18-21.

LC:
The Girl Who Ate Equations for Breakfast
by Jerry Farlow

Five Equations that changed the World
by Michael Guillen

PACING	IMPACT TEXTBOOK **D&U: Develop & Understand** **E: Explore Ex: Example** **IYOW: In Your Own Words** **PS: Problem Set** **QQ: Quick Quiz** **S&S: Share and Summarize**	**QR: Quick Review Math Handbook** **CRM: Chapter Resource Masters** **SKILLS INTERVENTION**	NEW YORK STATE MATHEMATICS STANDARDS	NOTES **N: Notes** **LP: Links to the Past** **LC: Literature Connections** **CC: Computer Connections**
WEEK 23	**9.2 A Model for Solving Equations** • To introduce the balance model for solving equations. • To write equations to solve problems. *Suggested Per Period Pacing:* 113. E, p. 446; Investigation 1: ALL 114. Investigation 2: E, p. 449; D&U:A, p. 449; Ex, p. 450; D&U:B, pp. 450-451 115. T&D, p. 451; D&U:C, p. 452; S&S, p. 452 116. Investigation 3: ALL; IYOW, p. 458; QQ, p. 459 TE	*For additional practice or homework:* **QR** 5.1: Writing Expressions, p. 233. 5.4: Solving Linear Equations, 251-255. **CRM** Leveled Lesson Resources, pp. 12-16. *Standardized test review:* **Skills Intervention for Pre-Algebra** Skill 25: Simplifying Expressions and Equations, pp. 49-50, #7-17.	**ALGEBRA STRAND** *Students will represent and analyze algebraically a wide variety of problem solving situations.* 7.A.1 Translate two-step verbal expressions into algebraic expressions. *Students will perform algebraic procedures accurately.* 7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation	**LP:** **Course 1** 9.2: Backtracking, pp. 546-554. **LP:** **Course 2** 1.1: Write Expressions, pp. 9-12 8.3: Recognize Linear Relationships, pp. 368-381

PACING	IMPACT TEXTBOOK D&U: Develop & Understand E: Explore Ex: Example IYOW: In Your Own Words PS: Problem Set QQ: Quick Quiz S&S: Share and Summarize	QR: Quick Review Math Handbook CRM: Chapter Resource Masters SKILLS INTERVENTION	NEW YORK STATE MATHEMATICS STANDARDS	NOTES N: Notes LP: Links to the Past LC: Literature Connections CC: Computer Connections
WEEK 24	**9.3 Solve Equations** • To solve equations without using the balance puzzle model. • To solve simple word problems by writing and solving equations. *Suggested Per Period Pacing:* 117. E, p. 460; Investigation 1: ALL 118. Investigation 2: ALL QQ, p. 418 (TE). 119. Investigation 3: ALL 120. [Suggested: Investigation 4: ALL] 121. IYOW, p. 473, # 43; QQ, p. 473 TE	*For additional practice or homework:* **QR** 5.4: Solving Linear Equations, pp. 250-256. **CRM** Leveled Lesson Resources, pp. 17-22 *Standardized test review:* **QR** 5.6: Inequalities, pp. 266-267. **Skills Intervention for Pre-Algebra** Skill 29: Solve Inequalities, pp. 57-58.	**ALGEBRA STRAND** *Students will represent and analyze algebraically a wide variety of problem solving situations.* 7.A.1 Translate two-step verbal expressions into algebraic expressions. 7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation 7.A.5 Solve one-step inequalities **GEOMETRY STRAND** *Students will apply coordinate geometry to analyze problem solving situations.* 7.G.10 Graph the solution set of an inequality (positive coefficients only) on a number line.	**LP:** **Course 1** 9.2: Backtracking, pp. 546-554. 9.3: Guess-Check-Improve, pp. 560-567. **LP:** **Course 2** 1.2: Expressions and formulas, pp. 30-42.

grade 7

PACING	IMPACT TEXTBOOK **D&U: Develop & Understand** **E: Explore Ex: Example** **IYOW: In Your Own Words** **PS: Problem Set** **QQ: Quick Quiz** **S&S: Share and Summarize**	**QR: Quick Review Math Handbook** **CRM: Chapter Resource Masters** **SKILLS INTERVENTION**	NEW YORK STATE MATHEMATICS STANDARDS	NOTES **N: Notes** **LP: Links to the Past** **LC: Literature Connections** **CC: Computer Connections**
WEEK 25-26	**9.4 Solve Equations with Parentheses** • To simplify algebraic expressions and equations • To solve equations *Suggested Per Period Pacing:* 122. T&D, p. 474; Investigation 1: Ex, p. 474; D&U:A, p. 475 123. D&U:B, pp. 475-476; D&U:C, p. 476; S&S, p. 476. 124. Investigation 2: (ALL). 125. Investigation 3(All); IYOW, p. 488, # 54; QQ, p. 488 (TE).	*For additional practice or homework:* **QR** 5.4: Solving Linear Equations, pp. 248-258. **CRM** Leveled Lesson Resources, pp. 23-28 *Standardized test review:* **Skills Intervention in Pre-Algebra** Skill 23: Variables and Expressions, pp. 45-46.	**NUMBER SENSE AND OPERATIONS STRAND** ***Students will understand meanings of operations and procedures, and how they relate to one another.*** 7.N.11 Simplify expressions using order of operations. **Note:** Expressions may include absolute value and/or integral exponents greater than 0. **ALGEBRA STRAND** ***Students will perform algebraic procedures accurately.*** 7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation	**LP:** **Course 1** 3.4: Investigation 2: Distributive Property, pp. 179-183. **Course 2** 1.1: Variables and Expressions, pp. 4-21.

Review and Self-Assessment

126. Review and Self-Assessment, pp. 489-491

127. Test Chapter 9   **CRM:** MARS Assessment: Correcting Errors, pp. 42-43

grade 7

PACING	IMPACT TEXTBOOK		NEW YORK STATE MATHEMATICS STANDARDS	NOTES
	D&U: Develop & Understand *E: Explore Ex: Example* *IYOW: In Your Own Words* *PS: Problem Set* *QQ: Quick Quiz* *S&S: Share and Summarize*	*QR: Quick Review Math Handbook* *CRM: Chapter Resource Masters* *SKILLS INTERVENTION*		*N: Notes* *LP: Links to the Past* *LC: Literature Connections* *CC: Computer Connections*

CHAPTER 8: LINEAR RELATIONSHIPS

Ratios and Rates: Meaning and Representation—Develop; Proportions—Develop

Algebraic Representations: Coordinate Graphs—Develop; Tables and Graphs—Develop

Algebraic Reasoning: Patterns and Numeric Forms—Develop

Functions and Relations: Linear Expressions/Equations—Develop

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WEEK 27	Administer the Chapter 8 pretest **8.1 Rates** • To understand rates and proportional relationships. • To represent rates and proportional relationships. *Suggested Per Period Pacing:* 128. T&D, p. 368; Investigation 1: D&U:A, pp. 269-270;T&D, pp. 370-371 129. D&U:B, p. 372; S&S, p. 373; Investigation 2: T&D, p. 373;D&U:A, p. 374. 130. D&U:B, p. 375; D&U:C, p. 376; S&S, p. 376 131. Investigation 3: T&D, p. 377-378; D&U:A, p. 378; D&U:B, pp. 378-379; S&S, p. 379. 132. Inquiry Investigation 4 (All), pp. 380-381); IYOW, p. 385, # 7. 133. QQ, p. 388 TE **Note:** Must assign p. 382 question 1, <u>On Your Own Exercises</u> to expose students to measurement standards.	**CRM:** Chapter 8 pretest, pp. 19-22 *For additional practice or homework:* **QR** 5.5: Ratio and Proportion, p. 260-261. 6.8: Circles, p. 332-337 **CRM** Leveled Lesson Resources, *pp. 4-8* **Skills Intervention for Pre-Algebra:** Skill 53: Customary Units of Measure, pp. 105-106; Skill 54: Metric Units of Measure, pp. 107-108 *Standardized test review:* **Skills Intervention for Pre-Algebra** Skill 30: Ratio and Proportion, pp. 59-60. Skill 31: Proportional Reasoning, pp. 61-62.	**PROBLEM SOLVING STRAND** *Students will apply and adapt a variety of appropriate strategies to solve problems.* 7.PS.10 Use proportionality to model problems. **ALGEBRA STRAND** *Student will recognize, use, and represent algebraically patterns, relations, and functions.* 7.A.7 Draw the graphic representation of a pattern from an equation or from a table of data 7.A.10 Write an equation to represent a function from a table of values (MAY–JUNE IN GRADE 7). **MEASUREMENT STRAND** *Students will determine what can be measured and how, using appropriate methods and formulas.* 7.M.2 Convert capacities and volumes within a given system. 7.M.3 Identify customary and metric units of mass. 7.M.4 Convert mass within a given system.	**LP: Course 1** 1.3: Measure Around, pp. 40-47 7.2: Variables and Rules, pp.143-165. 9.1: Understand Equations, pp. 534-540 9.2: Backtracking, pp. 546-554. 9.3: Guess, Check and Improve, pp.560-567 **LC** *The Toothpaste Millionaire* by Jean Merrill

PACING	IMPACT TEXTBOOK		NEW YORK STATE MATHEMATICS STANDARDS	NOTES
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WEEK 27 (continued)			**GEOMETRY STRAND** *Students will apply coordinate geometry to analyze problem solving situations.* 8.G.15 Graph a line using a table of values. **Note:** This concept is introduced in Grade 7 to prepare students for later mastery.	

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WEEK 27-28	**8.2 Speed and Slope** • To recognize linear relationships from different forms: symbolic rules, graphs, patterns, and tables. • To understand slope and y-intercept in graphs *Suggested per period pacing:* 134. Explore, p. 389; Investigation 1:D&U:A, pp. 390-391; T&D, p. 391; D&U:B, pp. 392-392 135 Ex, p. 393; T&D, p. 393; S&S, p. 393; Investigation 2: T&D, p. 394; D&U:A, p. 394 136. T&D, p. 395; D&U:B, p. 395; S&S, p. 396 137. Investigation 3: D&U:A, p. 397; S&S, p.397; Investigation 4: D&U:A, p. 398 138. T&D, p. 399; D&U:B, pp. 399-401; S&S, p. 401; IYOW, p. 406, # 19; QQ, p. 409	*For additional practice or homework:* **QR** 5.3: Distance traveled; p. 246 5.8: Slope and Intercept, pp. 275-278 **CRM:** Leveled Lesson Resources, pp. 9-13 **Skills Intervention for Pre-Algebra** Skill 37: Slope of a Line, pp. 73-74.	**PROBLEM SOLVING STRAND** *Students will solve problems that arise in mathematics and in other contexts.* 7.PS.6 Represent problem situations verbally, numerically, algebraically, and graphically. *Students will apply and adapt a variety of appropriate strategies to solve problems.* 7.PS.10 Use proportionality to model problems. **ALGEBRA STRAND** *Students will perform algebraic procedures accurately.* 7.A.6 Evaluate formulas for given input values (surface area, rate, and density problems). *Students will recognize, use, and represent algebraically patterns, relations, and functions.* 7.A.7 Draw the graphic representation of a pattern from an equation or from a table of data 7.A.8 Create algebraic patterns using charts/tables, graphs, equations, and expressions. 7.A.10 Write an equation to represent a function from a table of values (MAY–JUNE IN GRADE 7). *(continued)*	**LP:** **Course 1** 3.2: Patterns, pp. 120-135. 3.3: Variables and Rules, pp. 143-163 7.1: Squares, pp. 398-403 7.2: Calculating Areas: pp. 409-423 **Course 2** 7.3: The Pythagorean Theorem, pp. 343-355

PACING	IMPACT TEXTBOOK D&U: Develop & Understand E: Explore — Ex: Example IYOW: In Your Own Words PS: Problem Set QQ: Quick Quiz S&S: Share and Summarize	QR: Quick Review Math Handbook CRM: Chapter Resource Masters SKILLS INTERVENTION	NEW YORK STATE MATHEMATICS STANDARDS	NOTES N: Notes LP: Links to the Past LC: Literature Connections CC: Computer Connections
WEEK 27-28 (continued)			**GEOMETRY STRAND** *Students will apply coordinate geometry to analyze problem solving situations.* 8.G.13 Determine the slope of a line from a graph and explain the meaning of slope as a constant rate of change. 8.G.14 Determine the y-intercept of a line from a graph and be able to explain the y-intercept. Note: These concepts are introduced in Grade 7 to prepare students for later mastery.	

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WEEK 29	**8.3 Recognize Linear Relationships** To understand the connection between a linear equation and its graph. *Suggested Per Period Pacing:* 139. Explore, p. 410; Investigation 1: D&U:A, p. 411; D&U:B, p. 412. 140. D&U:C, pp. 412-413; S&S, p. 413. 141. Investigation 2: (All). 142. Investigation 3: D&U:A, p. 418; D&U:B, p. 419; S&S, p. 419 143. Investigation 4:D&U:A, pp. 420-421; D&U:B, pp. 421-422; S&S, p. 422. 144. QQ, p.430TE	*For additional practice or homework:* **QR,** 4.2: Displaying Data, 186-194. 5.8: Slope and Intercept, pp. 275-280 **CRM:** Leveled Lesson Resources, pp. 14-18 **Skills Intervention for Pre-Algebra** Skill 38: Graphing Linear Equations, pp. 75-76.	**PROBLEM SOLVING STRAND** *Students will solve problems that arise in mathematics and in other contexts.* 7.PS.6 Represent problem situations verbally, numerically, algebraically, and graphically. **ALGEBRA STRAND** *Students will recognize, use, and represent algebraically patterns, relations, and functions.* 7.A.7 Draw the graphic representation of a pattern from an equation or from a table of data 7.A.8 Create algebraic patterns using charts/tables, graphs, equations, and expressions 7.A.9 Build a pattern to develop a rule for determining the sum of the interior angles of polygons (MAY–JUNE IN GRADE 7) 7.A.10 Write an equation to represent a function from a table of values (MAY–JUNE IN GRADE 7).	**LP:** **Course 1** 3.3: Variables and Rules, pp. 143-165.

Review and Self-Assessment

144. Review and Self-Assessment, pp. 431-433

145. Test Chapter 8   **CRM:** MARS Assessment: Party, pp. 35-36

CHAPTER 10: PROPORTIONAL REASONING AND PERCENTS

Functions and Relations: Rational Expressions, Equations—Develop
Geometric Relationships: Similarity—Apply
Measurement: Perimeter and Area—Develop
Percents: Meaning and Representation—Develop
Ratio and Rates: Meaning and Representation—Develop; Proportion—Develop
Data Analysis: Surveys and Sampling—Expose

| WEEK 30 | Administer the Chapter 10 Pre-Test

10.1 Ratios
Recognize and express equivalent ratios

Suggested Per Period Pacing:
146. E, p. 494; Investigation 1: D&U:A, pp. 495-496; S&S, p. 497
147. Investigation 2: D&U:A, pp. 497-498; T&D, p. 498; D&U:B, p. 499; S&S, p. 499
148. QQ, p. 504TE | **CRM**
Chapter 10 pretest

For additional practice or homework:

QR
2.1: Fractions and Equivalent Fractions, pp. 96-97
5.5: Ratio and Proportion, p. 260

CRM
Leveled Lesson Resources, pp. 4-8 | **PROBLEM SOLVING STRAND**
Students will apply and adapt a variety of appropriate strategies to solve problems.
7.PS.10 Use proportionality to model problems. | **LP:**
Course 1
2.1: Patterns in Fractions, pp58-67
4.1: Use Percents: Investigation 3, D&U:B, p. 356.
4.3: Percents and Wholes, Investigation 1, 381-384.

LC
Funny and Fabulous Fraction Stories
by Dan Greenburg |

grade 7

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WEEK 30-31	**10.2 Proportions and Similarity** To write and solve proportions. *Suggested Per Period Pacing:* 149. T&D, p. 505; Investigation 1: D&U:A, pp. 506-507; S&S, p. 507 150. Investigation 2: ALL 151. Investigation 3: ALL 152. Investigation 4: ALL 153. Investigation 5: ALL 154. Inquiry Investigation 6: ALL 155. IYOW, p. 527,#23;QQ, p. 529 **Note:** Review cross multiplication as a method to solve proportions.	*For additional practice or homework:* **Hot Words, Hot Topics** 5.5: Ratio and Proportion, pp. 260-263. **CRM** Leveled Lesson Resources, pp. 9-14 *Standardized test review:* **Skills Intervention for Pre-Algebra** Skill 30: Ratio and Proportion, pp. 59-60. Skill 31: Proportional Reasoning, pp. 61-62.	**PROBLEM SOLVING STRAND** *Students will apply and adapt a variety of appropriate strategies to solve problems.* 7.PS.10 Use proportionality to model problems. **REPRESENTATION STRAND** *Students will use representations to model and interpret physical, social, and mathematical phenomena.* 7.R.9 Use mathematics to show and understand physical phenomena (e.g., make and interpret scale drawings of figures or scale models of objects). **MEASUREMENT STRAND** *Students will determine what can be measured and how, using appropriate methods and formulas.* 7.M.1 Calculate distance using a map scale. (MAY–JUNE in GRADE 7). 7.M.7 Convert money between different currencies with the use of an exchange rate table and a calculator (MAY–JUNE in GRADE 7). **Note:** Questions 21 and 22 (page 527) are the only instance where 7.M.7 is addressed in Impact Math.	**LP:** **Course 1** 2.1: Patterns in Fractions, pp 58-67

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WEEK 32	**10.3 Percents and Proportions** • To use percentages to make comparisons • To understand percent change 156. T&D, p. 562; Investigation 1: T&D, p. 563; PS A, p. 563. 157. PS B, pp. 564–565; S&S, p. 565; Investigation 2: PS C, p. 566; T&D, p. 567. 158. PS D, pp. 567-568; S&S, p. 568. 159. Investigation 3: (All). 160. Investigation 4: (All). 161. IYOW, p. 582; QQ, p. 583.	*For additional practice or homework:* **QR** 2.7: Meaning of Percent, pp. 132-134. 2.8: Using and Finding Percents, pp. 136-145. **CRM** Leveled Lesson Resources, pp. 15-19 *Standardized test review:* **Skills Intervention for Pre-Algebra** Skill 17: Percents as Fractions and Decimals, pp. 33-34. Skill 18: Percent of a Number, pp. 35-36. Skill 19: Percent Proportion, pp. 37-38.	**PROBLEM SOLVING STRAND** *Students will apply and adapt a variety of appropriate strategies to solve problems.* 7.PS.10 Use proportionality to model problems. **REPRESENTATION STRAND** *Students will use representations to model and interpret physical, social, and mathematical phenomena.* 7.R.9 Use mathematics to show and understand physical phenomena (e.g., make and interpret scale drawings of figures or scale models of objects). **NUMBER SENSE AND OPERATIONS STRAND** *Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.* 7.N.4 Develop the laws of exponents for multiplication and division *(continued)*	**LP:** **Course 1** 6.1: Using Percent, pp. 348-361 4.2: A Percent of a Quantity, pp. 368-389

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WEEK 32 (continued)			**NUMBER SENSE AND OPERATIONS STRAND** *Students will understand meanings of operations and procedures, and how they relate to one another.* 8.N.3 Read, write, and identify percents less than 1% and greater than 100% 8.N.4 Apply percents to tax, percent increase/decrease, simple interest, sale price, commission, interest rates and gratuities. *Students will compute accurately and make reasonable estimates.* 8.N.5 Estimate a percent of quantity, given an application Note: These concepts are introduced in Grade 7 to prepare students for later mastery.	**LP:** **Course 1** 4.1: Use Percent, pp. 348-361. 4.2: A Percent of a Quantity, pp. 368-375

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WEEK 33	**10.4 Interpreting and Applying Proportions** To interpret comparisons that use ratios and percentages *Suggested Per Period Pacing:* 162. T&D, p. 585; Investigation 1: ALL 163. Investigation 2: ALL 164. IYOW, p. 594; QQ, p. A741 (TE).	**Skills Intervention for Pre-Algebra:** Skill 32: Scale Drawings, pp. 63-64. **CRM** Leveled Lesson Resources, pp. 20-24	**PROBLEM SOLVING STRAND** *Students will apply and adapt a variety of appropriate strategies to solve problems.* 7.PS.10 Use proportionality to model problems. **REASONING AND PROOF STRAND** *Students will make and investigate mathematical conjectures.* 7.RP.2 Use mathematical strategies to reach a conclusion. **MEASUREMENT STRAND** *Students will determine what can be measured and how, using appropriate methods and formulas.* 7.M.5 Calculate unit price using proportions (MAY–JUNE IN GRADE 7). 7.M.6 Compare unit prices (MAY–JUNE IN GRADE 7). 7.M.7 Convert money between different currencies with the use of an exchange rate table and a calculator. (MAY–JUNE IN GRADE 7). *(continued)*	**LP:** **Course 1** 6.1: Use Percents, pp. 348-361 6.3: Percents and Wholes, pp. 380-389

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WEEK 33 (continued)			**STATISTICS AND PROBABILITY STRAND** *Students will make predictions that are based upon data analysis.* 7.S.7 Identify and explain misleading statistics and graphs. *Students will understand and apply concepts of probability.* 7.S.9 Determine the validity of sampling methods to predict outcomes.	

Review and Self-Assessment
Suggested Per Period Pacing

165. Review and Self Assessment, p. 596–599.

166. Test, Chapter 10   **CRM**: MARS Assessment: The Poster, pp. 44-46.