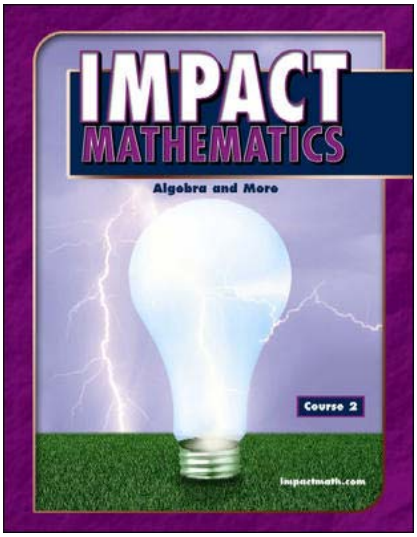
Mc Graw Hill Glencoe

Mathematics Curriculum Framework
Grade 7

Connecticut



IMPACT MATHEMATICS

Algebra and More

Course 2
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STANDARDS	PAGE REFERENCES
Grade 7	
ALGEBRAIC REASONING: PATTERNS AND FUNCTIONS **Patterns and functional relationships can be represented and analyzed using a variety of strategies, tools and technologies.**	
How do patterns and functions help us describe data and physical phenomena and solve a variety of problems?	
Students should… 1.1 Understand and describe patterns and functional relationships.	
a. Analyze physical phenomena and patterns to identify relationships and make generalizations. **(1)** Generalize mathematical situations and patterns with algebraic expressions, equations and inequalities. **(2)** Identify the independent and dependent variables in a given situation. **(3)** Recognize and explain when a graph should be continuous or a discrete set of points.	**Student Edition:** 78-83, 345-347, 348-350, 365-367, 374 #15, 557 #13-#16, 644-651, 652-653 *Lab Investigation* 203-205 **Teacher's Guide:** T 78, 79, 345 ***Quick Review Math Handbook Book 2*** 63-64, 265, 269

Codes used for Teacher Wraparound Edition pages are the initial caps of headings on that page.

STANDARDS	PAGE REFERENCES
1.2 Represent and analyze quantitative relationships in a variety of ways.	
a. Describe the effects of characteristics of mathematical relationships on the way the relationships are represented. **(1)** Use graphs, tables, equations and verbal descriptions to represent and analyze changes in linear and nonlinear relationships. **(2)** Recognize that a linear relationship has a constant rate of change.	**Student Edition:** 303-304, 315, 344-347, 348-350, 358 #13, 365-367, 368-370, 371, 373 #14, 437-439, 644-647, 648-650 **Teacher's Guide:** T 345, 368, 629 ***Quick Review Math Handbook Book 2*** 280-290
1.3 Use operations, properties and algebraic symbols to determine equivalence and solve problems.	
a. Solve problems using a variety of algebraic methods. **(1)** Solve problems using concrete, verbal, symbolic, graphical and tabular representations.	**Student Edition:** 20-21, 32-36, 37-41, 79-82, 382, 384-387, 392-393, 395, 396-401, 404-405, 409-414, 417, 428, 430, 437-439, 445 **Teacher's Guide:** T 39, 397, 413 ***Quick Review Math Handbook Book 2*** 280-289, 291
b. Maintain equivalence in equations to determine solutions. **(1)** Model and solve one-step and two-step linear equations using a variety of methods.	**Student Edition:** 395-403, 404-405, 411-414, 415-416 **Teacher's Guide:** T 397, 413 ***Quick Review Math Handbook Book 2*** 285-289, 291

STANDARDS	PAGE REFERENCES
NUMERICAL AND PROPORTIONAL REASONING: Quantitative relationships can be expressed numerically in multiple ways in order to make connections and simplify calculations using a variety of strategies, tools and technologies.	
How are quantitative relationships represented by numbers?	
Students should… **2.1 Understand that a variety of numerical representations can be used to describe quantitative relationships.**	
a. Represent real-world situations and solutions to problems using the appropriate symbolic form (fractions, decimals or percents). **(1)** Rewrite a rational number in its equivalent fraction, decimal, ratio and percent forms with number patterns and common factors. **(2)** Identify and classify fractions as terminating or repeating decimals. **(3)** Estimate and perform computations with fractions, decimals, mixed numbers, improper fractions, ratios, proportions and percents. **(4)** Multiply and divide mixed numbers and decimals using the distributive property. **(5**) Use and describe appropriate methods to divide by a fraction or a decimal. **(6)** Solve practical problems involving rates, scale factors, mixtures and percents with proportions. **(7)** Estimate to predict outcomes and determine reasonableness of results, and describe whether an estimate is an over- or underestimate.	**Student Edition:** 48-51, 140 #36, 187 #19, 311 #5, 318 #10, 508 #9, 513 #36, 562-565, 566-571, 572-574, 575-584, 590-595, 629-630, 640 #12 **Teacher's Guide:** T 248, 565 ***Quick Review Math Handbook Book 2*** 113 #14, #15, 119, 122, 123, 129, 131, 140, 150, 151, 155, 158, 159
b. Understand the use of scientific notation as related to powers of ten as an efficient method for writing and comparing very large numbers. **(1)** Use powers of ten and positive exponents to express and compare magnitude of very large numbers and connect to scientific notation. **(2)** Develop, describe and use a variety of methods to estimate and calculate with very large numbers.	**Student Edition:** 192-195, 196-199, 200-202, 206-211, 214-215, 241 #77, 286-287, 289, 291 *Lab Investigation* 203-205 **Teacher's Guide:** T 248, 287 ***Quick Review Math Handbook Book 2*** 178-179, 181, 183
c. Use percents to make comparisons between groups of unequal size. **(1)** Estimate and find percents, including percents greater than 100 percent and less than 1 percent using number patterns and the distributive property. **(2)** Find what percent one amount is of another amount using a variety of strategies.	**Student Edition:** 562-565, 566-567, 568-571, 572-574, 575-584, 585-587, 590 **Teacher's Guide:** T 574 ***Quick Review Math Handbook Book 2*** 143-147, 149

STANDARDS	PAGE REFERENCES
2.2 Use numbers and their properties to compute flexibly and fluently, and to reasonably estimate measures and quantities.	
a. Extend the operations of addition, subtraction, multiplication and division to negative numbers. **(1)** Solve problems with positive and negative numbers using models and number lines. **(2)** Use the order of operations to compute and solve a variety of multistep problems, including those with parentheses and exponents. **(3)** Explore absolute value while solving problems involving distance.	**Student Edition:** 218-219, 222-227, 228-230, 231-233, 234-235, 236-241, 242-244, 245-247, 248-249, 250-253 *Lab Investigation* 220-221 **Teacher's Guide:** T 218, 226, 232, 244 ***Quick Review Math Handbook Book 2*** 90-92, 93, 95
GEOMETRY AND MEASUREMENT **Shapes and structures can be analyzed, visualized, measured and transformed using a variety of strategies, tools and technologies.**	
How do geometric relationships and measurements help us to solve problems and make sense of our world?	
Students should… **3.1 Use properties and characteristics of two- and three-dimensional shapes and geometric theorems to describe relationships, communicate ideas and solve problems.**	
a. Describe and classify polygons according to their transformational properties. **(1)** Identify which classes of polygons have line and/or rotational symmetry. **(2)** Use rectangular grids to represent polygons and perform transformations (translations, rotations, reflections and dilations) on these polygons. **(3)** Describe the effect of transformations on polygons with line and/or rotational symmetry.	**Student Edition:** 485-488, 489-491 ***Quick Review Math Handbook Book 2*** 344-348, 349
3.2 Use spatial reasoning, location and geometric relationships to solve problems.	
a. Understand how three-dimensional objects can be represented in two dimensions using base plans (footprints), orthogonal views, nets and isometric drawings. **(1)** Draw and interpret nets, cross-sections and front, side and top views of various solids. **(2)** Develop and use strategies to determine the surface area of three-dimensional objects.	**Student Edition:** 91-97, 100-104, 106 #25, 111, 129-134, 136-138, 141 #2, 501-502, 507 #7 **Teacher's Guide:** 77a; T 91, 93, 131 ***Quick Review Math Handbook Book 2*** 362

STANDARDS	PAGE REFERENCES
3.3 Develop and apply units, systems, formulas and appropriate tools to estimate and measure.	
a. Solve geometric and measurement problems through the use of a variety of tools, techniques and strategies. **(1)** Use estimation and measurement strategies to solve problems involving the areas of irregular polygons and volumes of irregular solids.	**Student Edition:** 47 #10, 89 #16, 292 #83, 314 #2, 317 #6, 387 #4, 453 #3, 467 #22, 493 #8, 515 #6, 540-542, 548-550, 555-556 *Lab Investigation* 476-477, 551-553 ***Quick Review Math Handbook Book 2*** 428-432, 434, 443
WORKING WITH DATA: PROBABILITY AND STATISTICS **Data can be analyzed to make informed decisions using a variety of strategies, tools and technologies.**	
How can collecting, organizing and displaying data help us analyze information and make reasonable predictions and informed decisions?	
Students should… **4.1 Collect, organize and display data using appropriate statistical and graphical methods.**	
a. Select the appropriate visual representation of data based on the kind of data collected and the purpose for its use. **(1)** Formulate questions, design surveys and samplings, organize and analyze gathered data and defend the analysis. **(2)** Organize and display data using appropriate graphical representations and make and defend predictions based on patterns and trends.	**Student Edition:** 140 #36, 188 #23, 267 #20, 337 #5, 620 #9, 650-651, 692-696, 697-699, 700-707, 709, 714-717, 719, 722, 726, 727 ***Quick Review Math Handbook Book 2*** 193, 233
4.2 Analyze data sets to form hypotheses and make predictions.	
a. Understand that measures of central tendency and spread can be used to describe data sets and justify conclusions. **(1)** Find, use and interpret measures of central tendency and spread, including mode, median, mean, range and outliers. **(2)** Compare two sets of data based on their distributions and measures of central tendency.	**Student Edition:** 31 #67, 408 #30, 561, 711-714, 720, 721 ***Quick Review Math Handbook Book 2*** 210-215, 237

STANDARDS	PAGE REFERENCES
4.3 Understand and apply basic concepts of probability.	
a. Compare and determine experimental and theoretical probabilities. **(1)** Identify the two ways of obtaining probabilities: by gathering data from experiments (experimental probability); and by analyzing the possible and likely outcomes (theoretical probability). **(2)** Conduct experiments and compare experimental to theoretical probabilities. **(3)** Solve problems involving the probability of simple and compound events in familiar contexts.	**Student Edition:** 51 #32, 127 #31, 253 #65, 418 #50, 666-667, 668-671, 672-675, 676-677, 683-685, 686-690 ***Quick Review Math Handbook Book 2*** 224-230, 237 #15