

**The
University of
Chicago
School
Mathematics
Project**

**Pre-Transition
Mathematics**

Correlated to
Minnesota
Academic Standards for
Mathematics

Grade 6



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Minnesota Academic Standards for Mathematics	McGraw-Hill Pre-Transition Mathematics
ASSESSMENT ANCHOR	
Number & Operations Read, write, represent and compare positive rational numbers expressed as fractions, decimals, percents, and ratios; write positive integers as products of factors; use these representations in real-world and mathematical situations.	
6.1.1.1 Locate positive rational numbers on a number line and plot pairs of positive rational numbers on a coordinate grid.	PE: 50–53, 65, 66, 68, 69, 307–310 TE: 50–53, 65, 66, 68, 69, 307–310 RM: 30, 31, 32 LM: 1-8A, 1-8B, 2-1A, 5-7A, 5-7B AR: Chapter 1 Test Forms A–D, Chapter 2 Test Forms A–D, Chapter 5 Test Forms A–D
6.1.1.2 Compare positive rational numbers represented in various forms. Use the symbols $<$, $=$ and $>$.	PE: 121–125 TE: 121–125 RM: 58–59 LM: 2-10A, 2-10B AR: Chapter 2 Test Forms A–D
6.1.1.3 Understand that percent represents parts out of 100 and ratios to 100.	PE: 114–119, 127, 367–371 TE: 114–119, 127, 367–371 RM: 55, 117, 118 LM: 2-9A, 2-9B, 6-7A, 6-7B AR: Chapter 2 Test Forms A–D, Chapter 6 Test Forms A–D
6.1.1.4 Determine equivalences among fractions, decimals and percents; select among these representations to solve problems.	PE: 110–113, 114–119 TE: 110–113, 114–119 RM: 53, 54, 55 LM: 2-8A, 2-8B, 2-9A, 2-9B AR: Chapter 2 Test Forms A–D
6.1.1.5 Factor whole numbers; express a whole number as a product of prime factors with exponents.	PE: 411–416 TE: 411–416 RM: 128 LM: 7-3A, 7-3B AR: Chapter 7 Test Forms A–D

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6.1.1.6 Determine greatest common factors and least common multiples. Use common factors and common multiples to calculate with fractions and find equivalent fractions.	PE: 185, 192–193 TE: 185, 192–193
6.1.1.7 Convert between equivalent representations of positive rational numbers.	PE: 110–113, 114–119 TE: 110–113, 114–119 RM: 53, 54, 55 LM: 2-8A, 2-8B, 2-9A, 2-9B AR: Chapter 2 Test Forms A–D
Number & Operations Understand the concept of ratio and its relationship to fractions and to the multiplication and division of whole numbers. Use ratios to solve real-world and mathematical problems.	
6.1.2.1 Identify and use ratios to compare quantities; understand that comparing quantities using ratios is not the same as comparing quantities using subtraction.	PE: 462–465 TE: 462–465 RM: 142 LM: 8-1A, 8-1B AR: Chapter 8 Test Forms A–D
6.1.2.2 Apply the relationship between ratios, equivalent fractions and percents to solve problems in various contexts, including those involving mixtures and concentrations.	PE: 462–465 TE: 462–465 RM: 142 LM: 8-1A, 8-1B AR: Chapter 8 Test Forms A–D
6.1.2.3 Determine the rate for ratios of quantities with different units.	PE: 401 TE: 401, 462–463
6.1.2.4 Use reasoning about multiplication and division to solve ratio and rate problems.	PE: 462–465, 467–470, 472–476, 488–491, 494–497 RM: 142, 144, 145, 146, 150, 151, 152 LM: 8-1A, 8-1B, 8-2A, 8-2B, 8-3A, 8-3B, 8-6A, 8-6B, 8-7A, 8-7B AR: Chapter 8 Test Forms A–D

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Number & Operations Multiply and divide decimals, fractions and mixed numbers; solve real-world and mathematical problems using arithmetic with positive rational numbers.	
6.1.3.1 Multiply and divide decimals and fractions, using efficient and generalizable procedures, including standard algorithms.	PE: 71–75, 335–339, 355–359, 390, 472–476, 477–481, 504 TE: 71–75, 335–339, 355–359, 390, 472–476, 477–481, 504 RM: 35, 36, 108, 113, 114, 115, 145, 146, 147, 148 LM: 2-2A, 2-2B, 6-2A, 6-2B, 6-5A, 6-5B, 8-3A, 8-3B, 8-4A, 8-4B AR: Chapter 2 Test Forms A–D, Chapter 6 Test Forms A–D, Chapter 8 Test Forms A–D
6.1.3.2 Use the meanings of fractions, multiplication, division and the inverse relationship between multiplication and division to make sense of procedures for multiplying and dividing fractions.	PE: 468–471 TE: 468–471 LM: 8-2A, 8-2B
6.1.3.3 Calculate the percent of a number and determine what percent one number is of another number to solve problems in various contexts.	PE: 114–119, 127, 361–364, 367–371 TE: 114–119, 127, 361–364, 367–371 RM: 55, 116, 117, 118 LM: 2-9A, 2-9B, 6-6A, 6-6B, 6-7A, 6-7B AR: Chapter 2 Test Forms A–D, Chapter 6 Test Forms A–D
6.1.3.4 Solve real-world and mathematical problems requiring arithmetic with decimals, fractions and mixed numbers.	PE: 29–30, 42–43, 74–75, 184–189, 191–194, 243–247, 355–359, 377–380, 438–441, 477–481 TE: 29–30, 42–43, 74–75, 184–189, 191–194, 243–247, 355–359, 377–380, 438–441, 477–481 LM: 1-4A, 1-4B, 2-2A, 2-2B, 3-8A, 3-8B, 3-9A, 3-9B, 4-7A, 4-7B, 6-5A, 6-5B, 6-9A, 6-9B, 7-8A, 7-8B, 8-4A, 8-4B AR: Chapter 1 Test Forms A–D, Chapter 2 Test Forms A–D, Chapter 3 Test Forms A–D, Chapter 4 Test Forms A–D, Chapter 6 Test Forms A–D, Chapter 7 Test Forms A–D, Chapter 8 Test Forms A–D

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6.1.3.5 Estimate solutions to problems with whole numbers, fractions and decimals and use the estimates to assess the reasonableness of results in the context of the problem.	PE: 78, 355–356, 367–368, 370 TE: 78, 355–356, 367–368, 370
Algebra Recognize and represent relationships between varying quantities; translate from one representation to another; use patterns, tables, graphs and rules to solve real-world and mathematical problems.	
6.2.1.1 Understand that a variable can be used to represent a quantity that can change, often in relationship to another changing quantity. Use variables in contexts.	PE: 138–139, 249–253, 483–486 TE: 138–139, 249–253, 483–486 RM: 149 LM: 8-5A, 8-5B AR: Chapter 8 Test Forms A–D
6.2.1.2 Represent the relationship between two varying quantities with function rules, graphs and tables; translate between any two of these representations.	PE: 313–316 TE: 313–316 RM: 106 LM: 5-8A, 5-8B AR: Chapter 5 Test Forms A–D
Algebra Use properties of arithmetic to generate equivalent numerical expressions and evaluate expressions involving positive rational numbers.	
6.2.2.1 Apply the associative, commutative and distributive properties and order of operations to generate equivalent expressions to solve problems involving positive rational numbers.	PE: 140–142, 155, 344, 377–382 TE: 140–142, 155, 344, 377–382 LM: 3-1A, 3-1B, 6-9A AR: Chapter 3 Test Forms A–D, Chapter 6 Test Forms A–D
Algebra Understand and interpret equations and inequalities involving variables and positive rational numbers. Use equations and inequalities to represent real-world and mathematical problems; use the idea of maintaining equality to solve equations. Interpret solutions in the original context.	
6.2.3.1 Represent real-world or mathematical situations using equations and inequalities involving variables and positive rational numbers.	PE: 138–139, 249–253, 313–316, 448–451, 483–486 TE: 138–139, 249–253, 313–316, 448–451, 483–486 RM: 140, 149 LM: 7-10A, 7-10B, 8-5A, 8-5B AR: Chapter 7 Test Forms A–D, Chapter 8 Test Forms A–D

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6.2.3.2 Solve equations involving positive rational numbers using number sense, properties of arithmetic and the idea of maintaining equality on both sides of the equation. Interpret a solution in the original context and assess the reasonableness of results.	PE: 138–139, 249–253, 483–486 TE: 138–139, 249–253, 483–486 RM: 149 LM: 8-5A, 8-5B AR: Chapter 8 Test Forms A–D
Geometry & Measurement Calculate perimeter, area, surface area and volume of two- and three-dimensional figures to solve real-world and mathematical problems.	
6.3.1.1 Calculate the surface area and volume of prisms and use appropriate units, such as cm^2 and cm^3 . Justify the formulas used. Justification may involve decomposition, nets or other models.	PE: 567–571, 573 TE: 567–571, 573 RM: 177, 178, 179 LM: 9-10A, 9-10B AR: Chapter 9 Test Forms A–D
6.3.1.2 Calculate the area of quadrilaterals. Quadrilaterals include squares, rectangles, rhombuses, parallelograms, trapezoids and kites. When formulas are used, be able to explain why they are valid.	PE: 526–531 TE: 526–531 RM: 160, 161, 162 LM: 9-3A, 9-3B AR: Chapter 9 Test Forms A–D
6.3.1.3 Estimate the perimeter and area of irregular figures on a grid when they cannot be decomposed into common figures and use correct units, such as cm and cm^2 .	See <i>UCSMP Geometry</i> . PE: 463–467 TE: 463–467
Geometry & Measurement Understand and use relationships between angles in geometric figures.	
6.3.2.1 Solve problems using the relationships between the angles formed by intersecting lines.	See <i>UCSMP Geometry</i> . PE: 518–524 TE: 518–524
6.3.2.2 Determine missing angle measures in a triangle using the fact that the sum of the interior angles of a triangle is 180° . Use models of triangles to illustrate this fact.	PE: 178–182 TE: 178–182 RM: 68, 69 LM: 3-7A, 3-7B AR: Chapter 3 Test Forms A–D
6.3.2.3 Develop and use formulas for the sums of the interior angles of polygons by decomposing them into triangles.	PE: 178–182 TE: 178–182 RM: 68, 69 LM: 3-7A, 3-7B

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	AR: Chapter 3 Test Forms A–D
Geometry & Measurement Chose appropriate units of measurement and use ratios to convert within measurement systems to solve real-world and mathematical problems.	
6.3.3.1 Solve problems in various contexts involving conversion of weights, capacities, geometric measurements and times within measurement systems using appropriate units.	PE: 26–30, 83–88 TE: 26–30, 83–88 RM: 23, 24, 25, 41 LM: 1-4A, 1-4B, 2-4A, 2-4B AR: Chapter 2 Test Forms A–D
6.3.3.2 Estimate weights, capacities and geometric measurements using benchmarks in measurement systems with appropriate units.	PE: 78 TE: 78
Data Analysis & Probability Use probabilities to solve real-world and mathematical problems; represent probabilities using fractions, decimals and percents.	
6.4.1.1 Determine the sample space (set of possible outcomes) for a given experiment and determine which members of the sample space are related to certain events. Sample space may be determined by the use of tree diagrams, tables or pictorial representations.	PE: 591–595, 597–602, 603–608 TE: 591–595, 597–602, 603–608 RM: 182, 183, 184, 185, 188, 189, 190, 191 LM: 10-2A, 10-2B, 10-3A, 10-3B, 10-4A, 10-4B AR: Chapter 10 Test Forms A–D
6.4.1.2 Determine the probability of an event using the ratio between the size of the event and the size of the sample space; represent probabilities as percents, fractions, and decimals between 0 and 1 inclusive. Understand that probabilities measure likelihood.	PE: 591–595, 597–602, 603–608 TE: 591–595, 597–602, 603–608 RM: 182, 183, 184, 185, 188, 189, 190, 191 LM: 10-2A, 10-2B, 10-3A, 10-3B, 10-4A, 10-4B AR: Chapter 10 Test Forms A–D
6.4.1.3 Perform experiments for situations in which the probabilities are known, compare the resulting relative frequencies with the known probabilities; know that there may be differences.	PE: 610–614, 623 TE: 610–614, 623 RM: 193, 194 LM: 10-5A, 10-5B AR: Chapter 10 Test Forms A–D

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6.4.1.4 Calculate experimental probabilities from experiments; represent them as percents, fractions and decimals between 0 and 1 inclusive. Use experimental probabilities to make predictions when actual probabilities are unknown.	PE: 610–614 TE: 610–614 RM: 193, 194 LM: 10-5A, 10-5B AR: Chapter 10 Test Forms A–D