

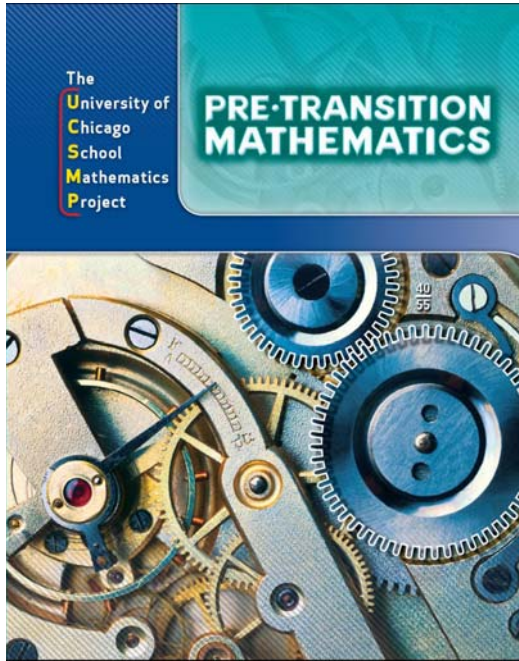
**The
University of
Chicago
School
Mathematics
Project**

**Pre-Transition
Mathematics**

Correlated to
Colorado
Academic Standards
for Mathematics

Grade 7





Grade 7 STANDARDS	PAGE REFERENCES
Number Sense, Properties, and Operations	
<p>Number sense provides students with a firm foundation in mathematics. Students build a deep understanding of quantity, ways of representing numbers, relationships among numbers, and number systems. Students learn that numbers are governed by properties, and understanding these properties leads to fluency with operations.</p> <p>Prepared Graduates The prepared graduate competencies are the preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must master to ensure their success in a postsecondary and workforce setting.</p>	
<p>1. In the real number system, rational numbers have a unique location on the number line</p> <p>a. Read, write, locate on number line, compare and order integers and positive rational numbers</p>	<p>SE: 6–11, 45–48, 104–108, 109, 114–119, 121–125</p> <p>TE: 6–11, 45–48, 104–108, 109, 114–119, 121–125</p> <p>LM: 1-1A, 1-1B, 1-7A, 1-7B, 2-1A, 2-1B, 2-7A, 2-7B, 2-9A, 2-9B, 2-10A, 2-10B</p> <p>RM: 16, 17, 29, 33, 34, 51, 52, 55, 56, 57, 58, 59</p> <p>AR: 3, 4, 5, 6, 7, 8, 12, 14, 17, 19, 20, 21</p>

SE: Student Edition
TE: Teacher's Edition

LM: Lesson Master
AR: Assessment Resources

RM: Resource Master

Grade 7 STANDARDS	PAGE REFERENCES
b. Apply the definition of absolute value with integers, quantifying the distance from zero	SE: 56 TE: 56
c. Express large and small numbers using scientific notation	SE: 390 TE: 390
d. Locate positive fractions and decimals on a number line	SE: 50, 65, 68 TE: 50, 65, 68 LM: 2-1A, 2-1B RM: 31
2. Formulate, represent, and use algorithms with integers and positive rational numbers flexibly, accurately, and efficiently	
a. Simplify numeric expressions using the order of operations	SE: 372–376 TE: 372–376 LM: 6-8A, 6-8B RM: 119 AR: 71–72, 74–75, 77, 79, 80–81
b. Add, subtract, multiply, and divide integers	SE: 153–158, 384–388, 417–422 TE: 153–158, 384–388, 417–422 LM: 3-3A, 3-3B, 6-10A, 6-10B, 7-4A, 7-4B AR: 25, 28, 30, 33, 71, 74, 89, 90, 92, 93, 97, 98
c. Use mental math and estimation strategies to solve problems involving percents	SE: 361–364 TE: 361–364 LM: 6-6A, 6-6B RM: 117 AR: 77, 78
d. Solve problems involving percent of a number, discounts, taxes, simple interest, percent increase, and percent decrease (PFL)	SE: 367–371 TE: 367–371 LM: 6-7A, 6-7B RM: 117, 118 AR: 72, 75, 78, 81
3. Proportional reasoning involves comparisons and multiplicative relationships among ratios	

SE: Student Edition
TE: Teacher's Edition

LM: Lesson Master
AR: Assessment Resources

RM: Resource Master

Grade 7 STANDARDS	PAGE REFERENCES
a. Use ratio relationships to solve for a missing value in a proportion	SE: 488–491, 494–497 TE: 488–491, 494–497 LM: 8-6A, 8-6B, 8-7A, 8-7B RM: 151 AR: 101, 102, 104, 107
b. Model proportional relationships with bar models, ratio tables, and similar figures	SE: 488–491, 501, 503, 504 TE: 488–491, 501, 503, 504 LM: 8-6A, 8-6B RM: 151
c. Explain the difference between a ratio, rate, and unit rate	SE: 401–402 TE: 400–402
d. Estimate and compute unit cost of consumables (to include unit conversions if necessary) sold in quantity to make purchase decisions based on cost and practicality (PFL)	SE: 401–404 TE: 401–404 LM: 7-1A RM: 124 AR: 90, 93
Patterns, Functions, and Algebraic Structures	
<p>Pattern sense gives students a lens with which to understand trends and commonalities. Being a student of mathematics involves recognizing and representing mathematical relationships and analyzing change. Students learn that the structures of algebra allow complex ideas to be expressed succinctly.</p>	
<p>Prepared Graduates The prepared graduate competencies are the preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must have to ensure success in a postsecondary and workforce setting.</p>	
1. Relationships involving the constant rate of change are modeled and solved using linear functions	
a. Given a linear situation (including direct variation), identify variables and write an equation in slope-intercept form	This skill is taught in <i>UCSMP Algebra</i> . SE: 348–355 TE: 348–355 LM: 6-3A, 6-3B RM: 84, 85 AR: 70–77

Grade 7 STANDARDS	PAGE REFERENCES
b. Given a linear equation (including direct variation), substitute input values to create a table and graph coordinate points in all four quadrants	SE: 313–316 TE: 313–316 LM: 5-8A, 5-8B RM: 106 AR: 58, 62
Data Analysis, Statistics, and Probability	
<p>Data and probability sense provides students with tools to understand information and uncertainty. Students ask questions and gather and use data to answer them. Students use a variety of data analysis and statistics strategies to analyze, develop and evaluate inferences based on data. Probability provides the foundation for collecting, describing, and interpreting data.</p>	
<p>Prepared Graduates</p> <p>The prepared graduate competencies are the preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must master to ensure their success in a postsecondary and workforce setting.</p>	
1. Visual displays and summary statistics with one-variable data condense the information in data sets into usable knowledge	
a. Distinguish between median as middle number and mean as balance point for an ordered set of data	SE: 273–276 TE: 273–276 LM: 5-1A, 5-1B RM: 95 AR: 55, 59, 63, 64, 66, 67
b. Use Mean Absolute Deviation (MAD) to analyze the spread of a set of data	This skill is taught in <i>UCSMP Algebra</i> . SE: 48–53 TE: 48–53 LM: 1-7A, 1-7B RM: 18 AR: 3–10
c. Construct and interpret dot plots, histograms, stem-and-leaf plots, and circle graphs	SE: 115–117, 128, 284–288, 290–293, 295–300 TE: 115–117, 128, 284–288, 290–293, 295–300 LM: 2-9A, 2-9B, 5-3A, 5-3B, 5-4A, 5-4B, 5-5A, 5-5B RM: 13, 16, 17, 18, 55, 56, 59, 60, 63, 64, 67
d. Construct and interpret a box plot using the five-number summary and identify the interquartile range (IQR) for a set of data	

SE: Student Edition
 TE: Teacher's Edition

LM: Lesson Master
 AR: Assessment Resources

RM: Resource Master

Grade 7 STANDARDS	PAGE REFERENCES
e. Compare sets of data using shape (skewed, normal, uniform), with appropriate measures of central tendency (mean, median, mode), and appropriate measures of spread (range, IQR, MAD)	SE: 733–740 TE: 733–740 LM: 13-3A, 13-3B RM: 226, 227 AR: 169, 178, 180, 181–182
f. Given a frequency table, calculate relative frequencies	SE: 610–614 TE: 610–614 LM: 10-5A, 10-5B RM: 193 AR: 133, 136, 140
Shape, Dimension, and Geometric Relationships	
<p>Geometric sense allows students to comprehend space and shape. Students analyze the characteristics and relationships of shapes and structures, engage in logical reasoning, and use tools and techniques to determine measurement. Students learn that geometry and measurement are useful in representing and solving problems in the real world as well as in mathematics.</p>	
<p>Prepared Graduates</p> <p>The prepared graduate competencies are the preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must master to ensure their success in a postsecondary and workforce setting.</p>	
1. Attributes of two- and three-dimensional objects are measurable and can be quantified	
a. Calculate (or estimate when appropriate) the perimeter and area of a two-dimensional irregular shape	SE: 145–146, 150 TE: 145–146, 150 LM: 3-2A
b. Justify, interpret, and apply the use of formulas for the surface area, and volume of cones, pyramids, and spheres including real-world situations	Students apply formulas for the volume of cones and spheres in <i>UCSMP Algebra</i> . SE: 18, 222 TE: 18, 222
c. Solve for unknown quantities in relationships involving perimeter, area, surface area, and volume	SE: 145–150, 519–524, 526–531, 533–538, 555–559, 561–565, 567–571, 573 TE: 145–150, 519–524, 526–531, 533–538, 555–559, 561–565, 567–571 LM: 3-2A, 3-2B, 9-2A, 9-2B, 9-3A, 9-3B, 9-4A, 9-4B, 9-8A, 9-8B, 9-9A, 9-9B, 9-10A, 9-10B RM: 63, 157, 158, 159, 160, 161, 162, 163, 171, 172, 173, 174, 175, 176, 177, 178, 179 AR: 25, 28, 114, 115, 116, 117–119, 120, 121, 123, 124, 125

SE: Student Edition
TE: Teacher's Edition

LM: Lesson Master
AR: Assessment Resources

RM: Resource Master

Grade 7 STANDARDS	PAGE REFERENCES
d. Apply the effect of dimensional change, utilizing appropriate units and scales in problem-solving situations involving perimeter, area, and volume	SE: 146–147 TE: 146–147

SE: Student Edition
TE: Teacher's Edition

LM: Lesson Master
AR: Assessment Resources

RM: Resource Master