The University of Chicago School Mathematics Project

Transition Mathematics

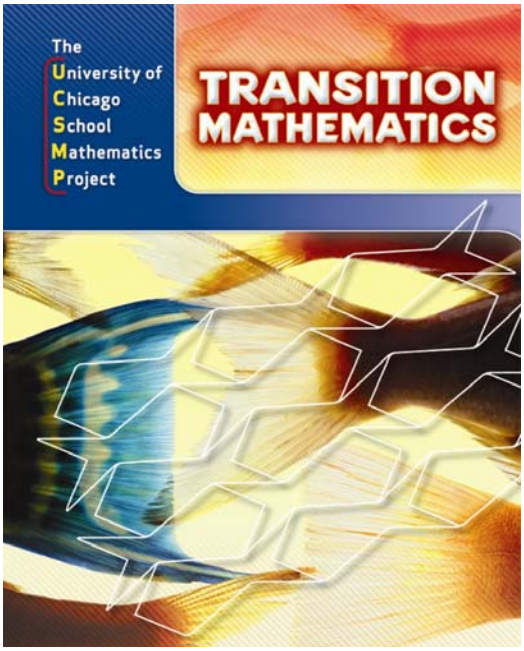
Correlated to
Colorado
Academic Standards
for Mathematics

Grade 8

SRA Wright Group

Colorado Academic Standards
Mathematics
Grade 8

Colorado



TRANSITION MATHEMATICS

Grade 8 STANDARDS	PAGE REFERENCES
Number Sense, Properties, and Operations	
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. **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.**	
1. In the real number system, rational and irrational numbers are in one to one correspondence to points on the number line	
a. Compare and order sets of integers and rational numbers that are expressed as fractions, decimals, or percents	SE: 12–16, 22, 27, 33, 38, 49, 132–139, 140–146, 151, 152, 193, 211, 265, 290 TE: 12–16, 132–139, 140–146, 211–212 LM: 1-2A, 1-2B, 1-5A, 1-5B, 3-1A, 3-1B, 3-2A, 3-2B RM: 10, 36–37, 38–39 AR: 3–10, 26–33

SE: Student Edition **TE:** Teacher's Edition **LM:** Lesson Master **AR:** Assessment Resources **RM:** Resource Master

Grade 8 STANDARDS	PAGE REFERENCES
b. Given a whole number from 0 - 100, determine whether it is a perfect square or find the two consecutive whole numbers between which its square root lies	SE: 41–43, 75, 102, 180–186 TE: 39–42, 180–186 LM: 1-7A, 1-7B, 3-8A, 3-8B RM: 18, 51 AR: 3–10, 26–33
c. Approximate the location of square roots between two whole numbers on a number line	SE: 181, 184, 193 TE: 181, 184
2. Formulate, represent, and use algorithms with rational numbers flexibly, accurately, and efficiently	
a. Add, subtract, multiply and divide rational numbers including integers, positive and negative fractions and decimals	SE: 147–152, 161–166, 167–173, 174–179, 278–284, 285–293, 294–299, 300–305, 430–437, 438–443, 470–476, 486–492, 493–499, 500–506, 513–518, 554–561, 562–566, 567–571, 572–577, 583–588 TE: 147–152, 161–166, 167–173, 174–179, 278–284, 285–293, 294–299, 300–305, 430–437, 438–443, 470–476, 486–492, 493–499, 500–506, 513–518, 554–561, 562–566, 567–571, 572–577, 583–588 LM: 3-3A, 3-3B, 3-5A, 3-5B, 3-6A, 3-6B, 3-7A, 3-7B, 5-1A, 5-1B, 5-2A, 5-2B, 5-3A, 5-3B, 5-4A, 5-4B, 7-1A, 7-1B, 7-2A, 7-2B, 7-7A, 7-7B, 8-1A, 8-1B, 8-2A, 8-2B, 8-3A, 8-3B, 8-5A, 8-5B, 9-1A, 9-1B, 9-2A, 9-2B, 9-3A, 9-3B, 9-4A, 9-4B, 9-6A, 9-6B RM: 40, 43–45, 46–48, 49–50, 73, 74–76, 77, 78–79, 99–100, 101, 106, 107, 108, 109–110, 113–114, 121–122, 123–124, 125–126, 127–128, 130 AR: 26–33, 56–63, 91–98, 105–110, 116–121
b. Apply computational methods to solve multi-step application problems involving percents and rational numbers	SE: 150–151, 159, 174–179, 193, 283, 297–298, 436, 471, 474–475, 496–497, 559, 564–565, 585–587 TE: 151, 174–179, 281, 298, 421, 475, 496, 564–565, 586–587 LM: 3-3A, 3-3B, 3-7A, 3-7B, 5-1A, 5-1B, 5-3A, 5-3B, 7-1A, 7-1B, 7-7A, 7-7B, 8-2A, 8-2B, 9-1A, 9-1B, 9-2A, 9-2B, 9-6A, 9-6B RM: 49–50, 106, 123 AR: 26–33
c. Analyze how credit and debt impact personal financial goals (PFL)	SE: 505

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Patterns, Functions, and Algebraic Structures	
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. **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.	
1. Linear functions model situations with a constant rate of change and can be represented algebraically, graphically, and using tables	
a. Convert from one representation of a linear function to another, including situations, tables, equations (slope-intercept form), and graphs	
b. Use representations of linear functions to analyze situations and solve problems	
c. Identify the dependent and independent variable in real-world situations	SE: 105 TE: 104 LM: 2-6A, 2-6B
d. Identify and interpret the slope (rate of change) and y-intercept in graphs, in tables, and from equations in slope-intercept form	
e. Model and graph two linear equations in slope-intercept form on the same coordinate plane and interpret the point of intersection as the solution to the system of equations	SE: 616–622 TE: 616–622 LM: 10-1A, 10-1A RM: 134–138 AR: 132–139
2. Properties of algebra, equality, and inequality are used to solve linear equations and inequalities	
a. Use the distributive, associative, and commutative properties to simplify algebraic expressions	SE: 282–283, 288, 431, 490 TE: 84, 211, 280, 286, 288, 431, 432 LM: 5-1A, 5-1B, 5-2A, 5-2B

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b. Solve one-variable equations including those involving multiple steps, rational numbers, variables on both sides, and the distributive property	SE: 306–312, 320–326, 339, 486–492, 519–523, 524–531, 532–537, 578–582, 589–595, 623–628 TE: 306–312, 320–326, 486–492, 519–523, 524–531, 532–537, 578–582, 589–595, 623–628 LM: 5-5A, 5-5B, 5-7A, 5-7B, 8-1A, 8-1B, 8-6A, 8-6B, 8-7A, 8-7B, 8-8A, 8-8B, 9-5A, 9-5B, 9-7A, 9-7B, 10-2A, 10-2B RM: 80, 82, 107, 115, 118–119, 129, 131–132, 139–140 AR: 56–63, 105–110, 116–121, 132–139
c. Solve inequalities in one variable including negative coefficients and graph the solution on a number line	SE: 115–119, 313–319, 538–544, 578–582, 629–634, 635–640 TE: 115–119, 313–319, 538–544, 578–582, 629–634, 635–640 LM: 2-8A, 2-8B, 5-6A, 5-6B, 8-9A, 8-9B, 9-5A, 9-5B, 10-3A, 10-3B, 10-4A, 10-4B RM: 34–35, 81, 120, 129, 141–143, 144–145 AR: 13–20, 56–63, 105–110, 116–121, 132–139
d. Represent the distributive property in a variety of ways including numerically, geometrically, and algebraically	SE: 444–449, 489, 490, 491 TE: 147, 444–449, 487 LM: 7-3A, 7-3B, 8-1B RM: 102 AR: 91–98
3. Graphs and tables can be used to distinguish between linear and nonlinear functions	
a. Given a table or graph determine if the function is linear	SE: 88, 320–326, 530 TE: 320–326 LM: 5-7A, 5-7B RM: 82
b. Explain the properties of linear functions in tables and graphs	SE: 72, 74, 87, 88, 119, 293, 530, 599, 660 TE: 72, 74, 524–525, 659–660, 661 LM: 2-1A, 2-1B RM: 23, 26, 116, 152 AR: 13–20
Data Analysis, Statistics, and Probability	

Grade 8 STANDARDS	PAGE REFERENCES
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. **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.	
1. Visual displays and summary statistics of two-variable data condense the information in data sets into usable knowledge	
a. Given a scatter plot, calculate quadrant count ratio to quantify the magnitude and strength of the association between two variables for numeric data as positive, negative, or no correlation	SE: 50–51, 57–60, 82, 293, 319, 320, 347, 531, 757 TE: 50, 57–60, 320, 347 LM: 1-10A, 1-10B RM: 21 AR: 3–10
b. Given a scatter plot suggesting a linear relationship, draw a line of fit to make predictions	SE: 778–783 TE: 778–783 LM: 12-7A, 1-7B RM: 179 AR: 161–168
c. Use time series plots (line graphs) to analyze the trend of a set of data over time	SE: 654–658, 777, 778–783 TE: 654–658, 778–783 LM: 10-7A, 10-7B, 12-7A, 12-7B RM: 150–151, 179 AR: 132–139, 161–168
Shape, Dimension, and Geometric Relationships	
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. **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.	
1. Objects in the plane and their parts and attributes can be analyzed	

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a. Classify quadrilaterals and apply angle and side properties, including the sum of the interior angles	SE: 253–259, 382, 401–405 TE: 253–259, 381, 401–405 LM: 4-8A, 4-8B, 6-7A, 6-7B RM: 66–68, 96 AR: 43–50, 71–80
b. Apply properties of complementary, supplementary, and vertical angle relationships	SE: 238–240, 243–245, 249–251, 386–392 TE: 238–240, 386–392 LM: 4-6A, 4-6B, 6-5A, 6-5B RM: 63–64, 93 AR: 43–50, 71–80
c. Apply properties of parallel lines including corresponding angles and alternate interior angles	SE: 393–400, 405 TE: 393–400 LM: 6-6A, 6-6B RM: 94–95 AR: 71–80
2. Direct and indirect measurements can be used to describe and make comparisons	
• Use properties of similar triangles to find unknown lengths	SE: 340–346, 406–412 TE: 340–346, 406–412 LM: 5-10A, 5-10B, 6-8A, 6-8B RM: 86, 97 AR: 56–63, 71–80
• Use the Pythagorean Theorem to find unknown lengths in right triangles	SE: 96–102, 108, 114, 183, 185, 306, 413–418 TE: 96–102, 185, 413–418 LM: 2-5A, 2-5B, 3-8A, 3-8B, 6-9A, 6-9B RM: 29, 98 AR: 13–20, 71–80
• Use proportional reasoning to estimate distance, weight, and capacity	SE: 146, 151, 179, 497, 596–600 TE: 564, 565, 596–600 LM: 8-2A, 8-2B, 9-8A, 9-8B RM: 133 AR: 116–121

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• Use proportional reasoning to convert among measures including dimensional analysis	SE: 43, 91, 105, 146, 151, 179, 393, 492, 497, 601–606 TE: 91, 92, 495, 530, 564, 565, 601–606 LM: 2-4A, 2-4B, 8-2A, 8-2B, 9-9A, 9-9B RM: 108, 135–136 AR: 116–121