6th, 7th, 8th Grade Math
Transition Document

Key: (N)—New; (*) New/old blend; (NC) Not in 2009 CEDs but in old Colorado Academic Standards
Slant—indicates new vocabulary to focus on or new expectations

New to 6th grade standards as of Fall 2012	**JANUARY – MAY 2011 Greater emphasis of these skills are needed for current 6th grade students for transition to 2012 7th grade.**	**New to 7th grade standards as of Fall 2012**	**JANUARY – MAY 2011 Greater emphasis of these skills are needed for current 7th grade students for transition to 2012 8th grade.**	**New to 8th grade standards as of Fall 2012**	**JANUARY – MAY 2011 Greater emphasis of these skills are needed for current 8th grade students for transition to 2012 9th grade.**
Number Sense		**Number Sense**		**Number Sense**	
*Ratio • *Apply* concept including conversion of measurement units • **Use* tables to compare • *Apply* to fractions, decimals and percents (N) Unit rate • Unit pricing/ constant speed	• Use of ratio tables • Apply unit rate • Proficiency in division • Understanding of scale factor with use of equivalence	Unit rates/constant of proportionality • Compute • Determine proportionality • Identify in tables/graphs/ equations/verbal descriptions/ diagrams • Explain (x,y) proportional relationship in terms of situation with attention to unit rate Ex: (1,r) r= unit rate	Exponents • Proficiency in working with positive exponents	*Integer* exponents • **Apply* properties to generate equivalent expressions	Properties of exponents • Proficiency applying
(N) Percentages • Calculate whole, given part and percent • *Apply* part-to-part and part-to-whole	• Proficiency with equivalence of fractions, decimals, and percents				Order of Operations • Include absolute values • Include positive integer exponents • Apply properties of

ratios • *Compare* savings rates					real numbers
(N) Absolute value • *Define* • Order and find absolute value of rational numbers • Graph points on 4-quadrant coordinate plane to find distance between given points with same first or second coordinate	• Introduce the concept of absolute value	Absolute value • Apply • Prove distance between two numbers on number line is absolute value	Simple Scientific Notation	(N)/(NC)Scientific Notation • Mult/Oper with both dec and notation • *Compare* how many times larger or smaller • *Interpret* tech. generated scientific notation	Absolute value • Simplify numerical expressions
(N)/(NC) Integers • Compute • Creates situation for number sentence					
(N) Fractions • *Interpret and model* quotients of fractions • Compute quotients • *Illustrate* division of fractions by fractions using visual models and equations			Proficiency in finding the square root of a perfect square	(NC) Square root/*cube root* of small perfect numerals	
(NC) GCF/LCM			*Irrational numbers • *Define* • *Estimate* value of expressions		Irrational/rational numbers • Demonstrate difference

(NC) Describe numbers by characteristics • Prime • Composite • Square • Even • Odd • Divisibility					
(N) Number lines • Location of opposites • *Identify* and *explain* location of opposite of an opposite (N)/(NC) Coordinate Plane • Find and position pairs of integers/ rational numbers • *Explain* relationship of reflected ordered pairs					
Algebra		**Algebra**		**Algebra**	
(N) Expressions • Write and evaluate numerical expressions (including whole number exponents) • *Identify* parts of an expression • *Apply* PEMDAS including whole number exponents		(N) Equations and Expressions • Demonstrate equivalence of expressions and relationship among quantities • *Compare* arithmetic to algebraic solution ✓ Identify sequence of operations • Solve word problems	• Graphing on coordinate plane • Similarity of figures	Proportional relationships • *Graph and interpret unit rate as slope • *Compare* • *(NC) Explain slope using similar triangles in coordinate plane • Apply ratios, proportions and percents	

		• leading to inequalities • *Graph and interpret* the solution set of an inequality			
(N) Variables within equations and inequalities • Describe which values make an equation or inequality true • Apply substitution to determine whether a given number makes an equation or inequality true • *Solve equations of the form x+p=q and px=q wher p, q and x are non-negative rational numbers • Write an inequality given a condition • Represent inequalities on number line diagrams to prove infinitely many solutions	• Graphing		• Graphing points on a coordinate plane • Locating rate on table, equation	Linear functions • Points of intersection • (NC) Solve systems of two linear equations in two variables • (N) *Compare* functions • **Sketch* a graph from a verbal description • (N) *Interpret* rate of change in terms of situation, graph or table	
Dependent and independent variable • **Analyze* relationship using tables and graphs • Relate to equation					
Data Analysis		**Data Analysis**		**Data Analysis**	
Statistical questions (N) Demonstrate use of over-	• Distribution • Measure of center	(NC) Explain generalizations about a	• Familiarity with various data	**Describe* patterns • Clustering	

all shape of distribution (N) Make connection of ideas between measure of center and measure of variation	and variability	population (NC) Random sampling • Explain and support valid inferences • Draw inferences (NC) Gauge variation in estimates or predictions (NC) Recognize and classify various types of distributions (NC) Apply measures of center and variability to make informal comparative inferences	displays	• Outliers • Positive or Negative Correlation • Linear or Nonlinear Association	
(NC) Histograms and box plots (NC) * Give quantitative measures of center (median and/or mean) and *variability* (interquartile range and/ or mean absolute deviation)		(NC) *Explain* what information the probability of chance event provides (NC) Approximate the probability of a chance event (NC) Compare and explain sources of discrepancy from a model	• Graphing points	Scatter Plots • (NC) Informally fit a straight line • (NC)Informally assess the model fit	
(N) Relate choice of measures of center and variability to the *shape of the data distribution* and context in which data was gathered		(NC) *Develop uniform probability model to determine probabilities of events (NC) *Develop a probability model (NC) Find probabilities of compound events/represent sample spaces • Lists • Tables • Tree diagrams • Simulation	• Ability to locate slope, y-intercept on a table, graph or equation	Equation of linear model • (NC)Apply bivariate measurement data • Interpret slope and intercept	

		(N) *Explain* what a probability of a compound event is (NC) Identify outcomes in sample space (N) Design and use simulation to generate frequencies for compound events		(NC) Bivariate categorical data • Explain patterns of association • Display frequencies and relative frequencies • Use two-way tables	
			• Difference between categorical and numerical data	(NC) Two-way table • Construct • Interpret • Summarize data • Apply two categorical variables collected from same subjects	
			• Difference between frequency and relative frequency	(N/C) Association between two variables • Use relative frequencies to describe	
Geometry		**Geometry**		**Geometry**	
Measurement • (N) Apply formula for volume of rectangular prism with fractional edge lengths Coordinate plane • (NC) Draw polygons given coordinates • (N) Find side length joining points with	• Specific attributes of different shapes including 2-D and 3-D • Accurate angle measurement using protractor • Accuracy with linear measurement	Geometric figures • (N) Draw, *construct*, and describe including the relationship between them • (N) *Draw* given specified conditions • (N) *Construct*	• Graphing points on a coordinate plane • Difference between 2-D and 3-D figures • Difference between congruence and similarity	Transformations • (NC*) Verify* properties of transformations • (NC)/N *Describe* effect of transformations on 2-D figures **using**	

same first or second coordinates Surface Area • (NC) *Develop and apply* formulas and procedures Nets • (N) Represent 3-D figures made up of rectangles and triangles • (N) Use to find surface area		triangle given angle measures or side lengths and *determine* when conditions produce a *unique triangle, more than one triangle, or no triangle* • (N) *Describe* results from slicing 3-D figures (plane sections of right rectangular pyramids or prisms)		**coordinates** • (NC) Demonstrate congruency of 2-D figures using transformations • (NC) Describe sequence of transformations to exhibit congruence between 2-D figures • (NC) Demonstrate similarity of 2-D figures using transformations *including dilations* • (NC) Describe sequence of transformation to prove similarity	
		Differences in units of measure • (NC) *State and apply* formula for area and circumference of circles • (NC) *Explain* relationship between circumference and area of circle • (N) *Apply* properties of	• Angles formed by parallel lines and transversal	Informal arguments • (N) Establish facts about angle sum and exterior angles of triangles • Angles formed when parallel lines cut by transversal	

		supplementary, complementary, adjacent and vertical angles to find unknown angle			
	• Attributes that define given shapes	Area, surface area, and volume of 2-D and 3-D figures composed of: • triangles • quadrilaterals • polygons • cubes • right prisms	• Definition of volume	Direct and indirect measurement • (N) *Explain proof* and converse of Pythagorean Theorem • *Apply Pythagorean Theorem in a *coordinate system* • *(N) State* and *apply* formulas for volume of cones, cylinders and spheres	