

**Vertical Articulation Technical Assistance Document - Grade 3 Through Grade 6**

	<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
<b>Counting/ Cardinality/Place Value</b>	3.1 a) read/write 6-digit numerals, ID place value/value of each digit; b) round whole numbers 9,999 or less to nearest 10/100/1000; c) compare two whole numbers 0 - 9,999 w/ symbols/words	4.1 a) ID orally/in writing place value for each digit in a whole number through millions; b) compare two whole numbers through millions w/ symbols; c) round whole numbers through millions to nearest 10/100/1,000/10,000/100,000	5.1 round decimal through thousandths to nearest whole number/tenth/hundredth	
<b>Modeling/Comparing/Ordering</b>	3.3 a) name/write fractions rep by model; b) model/write fraction's names; c) compare fractions w/like/unlike denominators	4.2 a) compare and order fractions/mixed numbers; b) represent equivalent fractions; c) ID division statement that represents a fraction	5.2 a) recognize/name fractions in their equivalent decimal form and vice versa; b) compare/order fract and decimals	6.2 a) frac/dec/% - a) describe as ratios; b) ID from representation; c) equiv relationships; d) compare/order
	3.6 represent mult/div using area/set/number line models, create/solve problems involving mult of two whole numbers 99 or less and 5 or less	4.3 a) read/write/represent/ID decimals through thousandths; b) round to whole, tenth, hundredth; c) compare/order; d) write decimal and fraction equiv from a model	5.18 c) model one-step linear equations using add/sub	6.3 a) ID/represent integers; b) order/compare integers; c) ID/describe absolute value of integers
		4.5 a) determine common multiples/ factors	5.3 a) ID/describe characteristics of prime/composite numbers; b) ID/describe characteristics of even/odd numbers	6.4 Represent mult and div of fract
<b>Estimation</b>	3.4 estimate/solve single-step and multistep problems involving sum/diff of two whole numbers 9,999 or less	4.4 a) estimate sum/diff/product/ quotients of whole numbers		
<b>Operations/Recall</b>	3.2 recognize/use inverse relationships between add/sub and mult/div to complete fact sentences/solve problems	4.4 b) add/sub/mult whole numbers; c) divide whole numbers		
	3.7 add/sub proper fractions w/ like denominators 12 or less	4.5 b) add/sub fractions w/ like and unlike denominators; c) add/sub decimals	5.5 a) find sum/diff/product/quotient of two decimals through thousandths	6.6 a) mult/div fractions
	3.5 recall mult/div facts through twelves table			
<b>Solving Practical Problems</b>	3.4 estimate/solve single-step and multistep problems involving sum/diff of two whole numbers 9,999 or less	4.4 d) solve single-step and multistep add/sub/mult problems with whole numbers	5.4 create/solve single-/multistep practical problems involving add/sub/mult/div of whole numbers	6.7 solve practical problems involving add/sub/mult/div decimals
		4.5 d) solve single-/multistep practical problems involving add/sub fractions and decimals	5.5 b) create/solve single-/multistep practical problems involving decimals	6.6 b) solve practical problems involving add/sub/mult/div fractions
			5.6 solve single-/multistep practical problems involving add/sub w/ fractions and mixed numbers	

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Ratio/ Prop				6.1 describe/compare data using ratios 6.2 frac/dec/% - a) describe as ratios; ID from representation; b) equiv relationships; c) compare/order
Expressions/ Operations			5.7 evaluate whole number numerical expressions using order of operations	6.8 evaluate whole number expressions using order of operations
Exponents/ Squares/ Square Roots				6.5 investigate/describe positive exponents, perfect squares
Alg Patt/ Seq	3.19 recognize/describe/extend patterns using numbers/tables/pictures	4.15 recognize/create/extend numerical/geometric patterns	5.17 describe/express the relationship in a number pattern	6.17 ID/extend geometric/arithmetic sequences
Properties	3.20 a) identity/commutative properties for add/mult; b) ID examples of identity/commutative properties for add/mult	4.16 b) investigate/ describe associative property for add/mult	5.19 distributive property of mult over addition	6.19 a) investigate/recognize identity properties for add/mult; b) multiplicative property of zero; c) inverse property for mult
Equations and Inequalities		4.16 a) recognize/demonstrate meaning of equality in equation	5.18 a) investigate/describe concept of variable; b) write open sentence using variable; c) model one-step linear equations using add/sub; d) create problems based on open sentence	6.18 solve one-step linear equations in one variable  6.20 graph inequalities on number line
Probability	3.18 investigate/describe probability as chance/list possible results	4.13 a) predict the likelihood of simple event; b) represent probability as a number between 0 and 1	5.14 make predictions/determine probability by constructing a sample space	6.16 a) compare/contrast dep/indep events; b) determine probabilities for dep/indep events
Collect/Represent Data	3.17 a) collect/organize data; b) construct line plot/picture graph/bar graph; c) read/interpret/analyze data from line plot/picture graph/bar graph	4.14 collect/organize/display/interpret data from variety of graphs	5.15 collect/organize/interpret data, using stem-and-leaf plots/line graphs	6.14 a) construct circle graphs; b) draw conclusions/make predictions, using circle graphs; c) compare/contrast graphs

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Measures of Center			5.16 a) describe mean/median/mode; b) describe mean as fair share; c) find the mean/median/ mode/range; d) describe range as measure of variation	6.15 a) describe mean as balance point; b) decide which measure of center is appropriate
Measurement and Applications - Geometric Figures	3.9 a) estimate/use U.S. Cust/metric units to measure length; b) liquid volume; c) weight/mass; d) area/perimeter	4.6 a) estimate/measure weight/mass, describe results in U.S. Cust/metric units; b) ID equiv measurements between units within U.S. Cust system and between units within metric system	5.8 a) find perimeter/area/volume; b) differentiate among perimeter/area/ volume, ID which measure is appropriate; c) ID equiv measurements within metric system; d) estimate/measure U.S. Cust/metric; e) choose appropriate unit of measure w/ U.S. Cust/ metric	6.9 make ballpark comparisons between U.S. Cust/metric system
	3.10 a) measure distance around a polygon to determine perimeter; b) count number of square units to cover to determine area	4.7 a) estimate/measure length, describe result in metric/U.S. Cust units; b) ID equiv measurements between units within the U.S. Cust system and between units within the metric system	5.9 ID/describe diameter/radius/chord/ circumference of circle	6.10 a) define $\pi$ ; b) solve practical problems w/ circumference/area of circle; c) solve practical problems involving area and perimeter given radius/diameter; d) describe/determine volume/surface area of rect. prism
		4.8 a) estimate/measure liquid volume, describe results in U.S. Cust units; b) ID equiv measurements between units within the U.S. Cust system		
Plane and Solid Figures	3.15 ID/draw representations of points/line segments/rays/angles/lines	4.10 a) ID/describe representations of points/lines/line segments/rays/angles; b) ID representations of lines illustrating parallelism/perpendicularity	5.11 measure right/acute/obtuse/straight angles	6.11 a) ID coordinates of a point in a coordinate plane; b) graph ordered pairs in coordinate plane
	3.14 ID/describe/compare/contrast characteristics of plane/solid figures	4.12 a) define polygon; b) ID polygons with 10 or fewer sides	5.12 a) classify angles as right/ acute/ obtuse/straight; b) triangles as right/ acute/obtuse/equilateral/scalene/isosceles.	6.13 ID/describe properties of quadrilaterals
	3.16 ID/describe congruent/nongongruent plane figures	4.11 a) investigate congruence of plane figures after transformations; b) recognize images of figures from transformations	5.13 a) using plane figures will develop definitions of plane figures; b) investigate/describe results of combining/subdividing plane figures	6.12 determine congruence of segments/angles/polygons
Measurement - Money/Time/ Temperature	3.8 determine the value of a collection of bills/coins (\$5.00 or less), compare values of bills/coins, make change			
	3.11 a) tell time to nearest minute; b) determine elapsed time in 1-hr increments over 12-hour period	4.9 determine elapsed time in hours/min within 12-hour period	5.10 determine elapsed time in hours/min within 24-hour period	
	3.12 ID equiv periods of time			
	3.13 read temperature to nearest degree in C and F			