

VGLA COE Organizer

Mathematics 7

Place evidence that has been collected for submission behind the VGLA COE Organizer. Cardstock or colored paper may be used to assist in the organization of the COE.

7.1 The student will	
	compare
	fractions,
	decimals, and
	percents.
	order
	fractions,
	decimals, and
percents,	
	determine equivalent relationships between fractions, decimals, and percents, including scientific notation for numbers greater than 10.

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7.2 The student will simplify expressions that contain rational numbers (whole numbers, fractions, and decimals) and positive exponents, using	
	order of operations,
	mental mathematics, and
	appropriate tools.

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7.3 The student will identify and apply the following properties of operations with real numbers:		
a)		the commutative and associative properties for addition and multiplication;
b)		the distributive property;
c)		the additive and multiplicative identity properties;
d)		the additive and multiplicative inverse properties; and
e)		the multiplicative property of zero.

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7.4 The student will	
a)	solve practical problems using rational numbers
	whole numbers,
	fractions,
	decimals, and percents;
b)	solve consumer-application problems involving
	tips,
	discounts, sales tax, and
	simple interest.

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7.5 The student will formulate rules for and solve practical problems involving	
	basic operations with integers.
	addition,
	subtraction,
	multiplication, and
	division

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7.6 The student will use proportions to solve practical problems, which may include scale drawings, that contain	
	rational numbers
	whole numbers,
	fractions,
	decimals, and
	percents.

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7.7 The student, given appropriate dimensions, will	
a)	estimate and find the area of polygons by subdividing them into
	rectangles and
	right triangles; and
b)	apply perimeter and area formulas in practical situations.

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7.8 The student will investigate and solve problems involving the volume and surface area of rectangular prisms and cylinders, using	
	concrete materials and
	practical situations to develop formulas.

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7.9 The student will	
	compare and contrast the following quadrilaterals:
	parallelogram,
	rectangle,
	square,
	rhombus, and
	trapezoid.
	use deductive reasoning and inference to classify quadrilaterals.

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7.10 The student will	
	identify and draw the following polygons:
	pentagon,
	hexagon,
	heptagon,
	octagon,
	nonagon, and
	decagon.

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7.11 The student will	
	determine if geometric figures – quadrilaterals and triangles – are similar and
	write proportions to express the relationships between corresponding parts of similar figures.

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7.12 The student will	
	identify and graph ordered pairs in the four quadrants of a coordinate plane.

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7.13 The student, given a polygon in the coordinate plane, will	
	represent transformations - rotation and translation - by graphing the coordinates of the vertices of the transformed polygon and
	sketching the resulting figure.

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7.14 The student will	
	investigate and describe the difference between the probability of an event found through simulation versus the theoretical probability of that same event.

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7.15 The student will	
	identify and describe the number of possible arrangements of several objects, using a tree diagram or the Fundamental (Basic) Counting Principle.

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7.16 The student will create and solve problems involving	
	the measures of central tendency
	mean,
	median,
	mode, and
	range of a set of data.

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7.17 The student, given a problem situation, will collect, analyze, display, and interpret data, using a variety of graphical methods, including		
a)		frequency distributions;
b)		line plots;
c)		histograms;
d)		stem-and-leaf plots;
e)		box-and-whisker plots; and
f)		scattergrams.

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7.18 The student will	
	make inference, conjectures, and predictions based on analysis of a set of data.

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7.19 The student will represent, analyze, and generalize a variety of patterns, including arithmetic sequences and geometric sequences, with	
	tables,
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	rules, and
	words in order to investigate and describe functional relationships.

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7.20 The student will	
	write verbal expressions as algebraic expressions and
	write sentences as equations.

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7.21 The student will use the following algebraic terms appropriately:	
	<i>equation,</i>
	<i>inequality, and</i>
	<i>expression.</i>

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7.22 The student will	
a)	solve one-step linear equations and inequalities in one variable with strategies involving inverse operations and integers, using
	concrete materials,
	pictorial representations, and
	paper and pencil: and
b)	solve practical problems requiring the solution of a one-step linear equation.