

K-12 MAJOR STRAND GLE's ACROSS GRADE LEVELS

Scope & Sequence

Revised 5-4-09

ALGEBRAIC RELATIONSHIPS PATTERNS

K	1	2	3	4	5	6	7	8	ALG	GEO	Adv. ALG
<p>Recognize, extend, create, analyze and continue patterns (<i>of sound and shape</i>)</p> <p>Model simple changes (<i>Patterns in temp change, plant growth, height, weight-- "It is getting taller" etc.</i>) (DLE)</p>	<p>Recognize, extend, create, and analyze patterns (<i>sound, shape, motion, or a simple numeric pattern</i>)</p> <p>Model simple change (<i>temperature change, plant growth, height, weight</i>) (DLE)</p> <p>Describe how simple repeating patterns are generated.</p>	<p>Recognize and extend patterns</p> <p>Describe and extend simple numeric patterns and change from one representation to another</p> <p>Create and describe how simple growing patterns are generated</p>	<p>Recognize, describe, analyze & extend geometric and numeric patterns.</p> <p>Create, describe, represent patterns using words, tables, and graphs</p>	<p>Recognize, describe, analyze, and extend geometric & numeric patterns</p> <p>Create, describe, represent, and analyze patterns using words, tables, and graphs</p>	<p>Make & describe generalizations about geometric and numeric patterns</p> <p>Create, describe, represent & analyze patterns using words, tables, and graphs.</p>	<p>Compare patterns in charts, graphs, physical objects, drawings and symbols, including constant and varying rates of change.</p> <p>Look for generalizations among 2-D geometric figures (angles, sides) and numeric patterns (factoring, multiples).</p> <p>Using expressions, identify and describe patterns using tables, graphs, pictures, physical objects.</p>	<p>Analyze patterns using tables, graphs, pictures, symbolic rules and words including recursive notation.</p> <p>Continue a pattern</p> <p>Compare tables and graphs to find patterns.</p> <p>Using tables and graphs, compare rates of change (DLE)</p>	<p>Compare various forms of representations and patterns.</p> <p>Identify functions as linear or nonlinear from tables, graphs, and equations</p> <p>Compare and identify inverse/linear exponential & quadratic patterns as seen in a data table or graph</p> <p>Recognize linear equations, patterns in a word problem & create appropriate representations</p> <p>Create symbolic rules to</p>	<p>Represent patterns recursively and explicitly using next/now language</p> <p>Recognize linear vs nonlinear information</p> <p>Recognize linear trends in data</p>	<p>Represent patterns recursively and explicitly</p> <p>Write algebraic models for patterns</p>	<p>Write recursive and explicit formulas using appropriate mathematical notation (<i>intuitive</i>)</p> <p>Determine function that best fits a data set</p>

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REPRESENTING/SOLVING EQUATIONS

K	1	2	3	4	5	6	7	8	ALG	GEO	Adv. ALG
Model number sentences that involve whole numbers using pictures, objects, and symbols (<i>sums and differences</i>)	Using addition or subtraction, represent and model mathematical situation as an expression or number sentence (<i>pictures, objects, and symbols</i>)	Represent mathematical situations using addition or subtraction, represent a mathematical situation as an expression or number sentence	Model and solve problem situations with pictures, objects or symbols using addition, subtraction, and multiplication of whole numbers Represent a mathematical situation using number sentences and expressions with all operations	Model and solve problem situations with all four operations using graphs, tables, number sentences Introduce variables Represent a mathematical situation using number sentences and expressions with all operations	Model and solve problem situations (including the use of a variable) with all four operations and draw conclusions using representations such as graphs, tables, or number sentences Use basic operations to represent a mathematical situation as an expression or number sentence using a letter or symbol	Solving equations with one variable <i>“Hands on Equations”</i>	Define/choose/identify variables in an expression and solve 1-step equations using one variable Solve and model problems using tables & expressions Be able to solve formulas Use distributive, commutative, and associative properties	Solve 1 step & 2 step linear equations Use basic rules of algebraic manipulation using inverse operations as applied to equations & proportions Introduce solving of inequalities	Solving linear equations and inequalities Solving systems of linear equations and inequalities	Solving linear equations	Solving equations and inequalities Solving systems of quadratic equations

MANIPULATING EXPRESSIONS

K	1	2	3	4	5	6	7	8	ALG	GEO	Adv. ALG
Model the commutative (turn-arounds) property of addition to whole numbers	Apply the commutative (turn-arounds) and associative properties of addition to whole numbers	Apply and solve problems with whole numbers using the commutative and associative properties of addition	Recognize and apply distributive, commutative, and associative properties to solve basic addition, and multiplication facts with whole numbers	Recognize and use the commutative, distributive, and associative properties for addition and multiplication for basic facts and multi-digit whole numbers	Recognize and use the commutative, distributive, and associative properties for addition and multiplication for multi-digit numbers, fractions, decimals	Generate equivalent expressions using commutative, associative, distributive, properties	Write equivalent expressions using distributive, commutative, and associative properties <i>(including positives and rationals and integers)</i>	Use linear or exponential equations Simplify expressions & equations using distributive, commutative, associative & other properties Use & recognize slope intercept form of equation $(y=mx+b)$	Algebraic manipulation <i>(Add, sub, mult, divide expressions including the properties of exponents & factoring)</i>	Apply properties of exponents	Algebraic manipulations with exponential, logarithmic, and quadratic functions, complex numbers, rationalizing denominators

FUNCTIONS (QUANTITATIVE RELATIONSHIPS)

K	1	2	3	4	5	6	7	8	ALG	GEO	Adv. ALG
Model simple changes in patterns <i>(temp, plant growth, height, weight)</i>	Model simple changes in patterns <i>(temp, plant growth, height, weight)</i>	Describe quantitative and qualitative changes <i>(Such as students growing taller)</i>	Describe qualitative and quantitative change	Describe qualitative and quantitative mathematical relationships using constant rates of change	Identify, model, and describe situations with constant or varying rates of change	Model problems using multiple representations	Identify a function from a table or a graph Be able to look at a table, graph, and equation to tell if it is a linear function or not.	Identify functions as linear or nonlinear from tables, graphs, or equations Calculate slope & rates of change from graphs, tables, equations & word problems Use functions & equations to generate graphs, linear/exponential	Properties of linear, quadratic, and equations Analyze linear & quadratic functions (rates of change, y-intercept, and zeros)	Write linear functions	Identify parameter changes related to intercepts, asymptotes vertex, maximums & minimums Analyze functions <i>(rates of change, y-intercepts, asymptotes, zeros)</i>

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