Connecting Math Ideas: We express patterns in the language of algebra and visualize the patterns on the coordinate plane.

Teaching Tip: Begin the year with simple algebra ideas rather than continued practice with whole number computation. You will empower your students and provide opportunities for productive computation practice. Algebra is a standard of the National Council of Teachers of Mathematics (NCTM) and it intersects with all the other content standards (Data Analysis & Probability, Geometry, Measurement, Number & Operations).

Patterns	**The Language of Algebra**	**Equations and Functions**	**Coordinate Geometry**
This is what your students should be able to articulate • patterns are the heart of mathematics • formulas are patterns	This is what your students should be able to articulate • the difference between a variable, a value that can change, and a constant value that cannot change • there are infinite ways to express any number	This is what your students should be able to articulate • an equation needs to be in balance • algebra helps us find an unknown number •	This is what your students should be able to articulate • the coordinate plane consists of a horizontal and a vertical number line that intersect at right angles • an ordered pair identifies a unique point on the coordinate plane • the coordinate grid allows us to transform equations and functions into pictures
2n An important pattern	**Variables and Constants**		
The King's Chessboard	The Language of Algebra	Balance: Beginning to Understand Equations	Graphing Equalities and Inequalities
Extending "The King's Chessboard" Part 1	I Can Guess Your Number	Equations - a Visual Representation	Identifying Points on the Coordinate Grid
Extending "The King's Chessboard" Part 2	Matching Variable Expressions with Word Phrases	Solving Equations Using a Balance	Scatter Plots
Binary sequence punch cards	Magic Squares	Color Tile Riddles	Graphing Multiplication Tables
The Infinite Pine Tree	Equivalent Expressions	Solving Equations. (+ and -)	Graphs Tell A Story
Music/Math Connection	A Variable Card Game	Matching Equations with Word Problems	Graphing to Solve Time Distance Problems
Magic Cards	Factoring Monomials	Matching Equations with Word Problems	Interpolation and Extrapolation
Magic Cards Extended	**Simplification**	Matching Equations with Word Problems	Graphing Linear Equations

Arithmetic and Exponential Sequences Visuals	Using Factorials	Solving Quadratic Equations; Difference of Squares	Using y = mx + b: Runners 1 & 2
What's the Difference between 2n & 2n	Factorials & Permutations	Solving Quadratic Equations	Application of Slope and y-intercept
Sweet 16?- Final 4? - Who will WIN?	Olympic Factorials	Functions - Discovering a Rule	Graphing the Ten Meter Races
The "Life" of Medications	Multiplication by Powers of 10	Using Functions	Application of Slope and y-intercept - Advanced
Half-Off Store: Double Your Dollar Power!	Using Exponential Notation		Line of Best Fit
Patterns: Base two Logarithms	Prime Factorization		Functions: Application
3n A Special Sequence Number	Looking for Patterns in Powers and Bases		Comparing Linear and Exponential Relationships
Pythagorean Theorem	Exponential Growth		Matching description, equation and graph: Positive and Negative
Pythagorean Theorem Puzzle: Proof	Simplification		Matching labels, formulas, pictures for positive & negative graphs
Pythagorean Theorum Puzzle: $a^2 + b^2 = c^2$	Simplifying Algebraic Fractions		
Pythagorean Theorem	Polynomials		
Let the Pythagorean Theorem Work for You!	**Substitution**		
Similarity: Intructional	Pattern Blocks & Substitution		
Similarity: Practice	Substitution: An Alphabet Code		
Similarity: Assessment	Substitution: Computation practice with whole numbers, decimals, fractions and integers		
Pythagorean Triples Games	100 Names for One		

Special Right Triangles	Substitution: Evaluating Expressions		
Number Patterns: Cube Numbers	**Formulas are Patterns**		
Tile Patterns: Instructional	Using Formulae		
Tile Patterns: Practice	Measurement: Perimeter of Polygons		
Tile Patterns: Assessment	Area of irregular polygons: Pick's Theorem		
Using a Table to Discover a Pattern: Instructional	Surface Area & Volume Decomposing Rectangular Solids		
Creating a Table to Discover a Rule: Practice	Volume of Cylinders and Comes		
Using a Table to Discover a Pattern: Instructional	Unwrapping the Earth		
Using a Table to Discover a Pattern: Practice	Distributive Property: Illustrated		
Using a Table to Discover a Pattern: Assessment	Perimeter of Regular Polygons		
Creating a Pattern to Discover a Rule: Instructional	Distance Formulas d = rt		
Creating a Pattern to Discover a Rule: Assessment	Edges, Faces & Verices		
Creating a Pattern to Discover a Rule: Practice	Functions - Discovering a Rule		
Creating a Pattern to Discover a Rule: Assessment	Summation Notation / Sigma Notation / " Σ "		
Figurate Numbers	Find the Secret Word #1		
Patterns: Sum of Consecutive Numbers			
Calendar Contest			
Magic Tricks with Dice			