MATH BACKGROUND – GRADE 8

This chart correlates the Math Background Notes in *MathLinks*: Core 2nd Edition Grade 8 to adult-level explanations of more complex grade-level concepts in 8th grade (column 1) and high school (columns 2-6). Ted Gamelin, Professor Emeritus UCLA Department of Mathematics, also organized these notes into broad topics of importance to mathematics. Some of his classifications are listed in columns 7-11. All Math Backgrounds are written so that teachers can improve their own knowledge of the subject.

Unit	Math Background Grade 8	Complex Grade 8 Concept	Adult explanations / examples of concepts important to the high school domains					Adult explanations that provide insight into the mathematics				
			Number and Quantity	Algebra	Functions	Geometry	Statistics and Probability	History of Mathematics	Evolution, Multiplicity, and Clarification of Definitions	Theorems, Proofs, and Logical Reasoning	Theorems, Proofs, and Logical Reasoning	Real Numbers and Decimal Expansions
1	Why Does a Circle Have 360 Degrees?	x		x	x	x		x				
1	Angle Measurement	x				x		x				
1	Parallel Postulate	x				x		x				
1	Angle Sums of Triangles	x		x		x					x	
2	Approximating Square Roots by Linear Interpolation	x		x								
2/3	The Principal Square Root	x		x					x			
2	Statements of the Pythagorean Theorem	x		x		x					x	
2	President Garfield's Proof of the Pythagorean Theorem	x						x				
2	Converse of a Theorem	x		x		x					x	
2	Decimal Expansions of Rational Numbers	x	x									x
2	Subsets of the Real Numbers	x	x									x
3	Place Value Names											x
3	Simplifying Radical Expressions	x		x								
4	The Obvious Rule may not be the Only Rule	x		x							x	
4	Different Definitions of Function	x		x	x				x			
5	Growing the Formal Definition of Slope	x		x	x				x			
5	Why Can't You Divide by Zero?	x		x	x						x	

MATH BACKGROUND – GRADE 8
Continued

Unit	Math Background Grade 7	Complex Grade 8 Concept	Adult explanations and examples of concepts important to Grade 8 and the high school domains					Adult explanations that provide insight into the mathematics				
			Number and Quantity	Algebra	Functions	Geometry	Statistics and Probability	History of Mathematics	Evolution, Multiplicity, and Clarification of Definitions	Theorems, Proofs, and Logical Reasoning	Theorems, Proofs, and Logical Reasoning	Real Numbers and Decimal Expansions
6	Numerical and Categorical Data Sets	x					x		x			
6	Association and Causation	x					x		x			
6	Lines of Best Fit	x					x	x				
6	Categorical Variables and Frequencies	x					x		x			
6	Bivariate Data and Two-Way Tables	x					x		x			
8	Conjecture Verses Proof: Number Tricks	x		x							x	
9	Eucidean Geometry is not the only Geometry	x				x		x				
9	Informal Mathematical Vocabulary	x				x					x	
9	Basic Properties Shared by Translations, Rotations, and Reflections	x				x						
9	Functions in Mathematics	x		x	x	x			x			
9	Approaching Congruence and Similarity through Transformational Geometry	x				x		x				
10	Properties of Dilations	x				x						
10	Congruence and Similarity are Equivalence Relations	x				x			x			
10	The Angle-Angle (A-A) Criterion for Similar Triangles	x				x					x	
10	Similarity and Slope	x		x		x					x	