

Matrix: Bridge Building on the Rio Grande

Student's Name:		Grade Level:	School:	
Analytical Score:			Holistic Score: N A P E	
<input type="checkbox"/> Understanding:		N A P E		Comments or Observations:
<input type="checkbox"/> Reasoning, Strategies, & Mathematical Procedures:		N A P E		
<input type="checkbox"/> Communication:		N A P E		
APS MATHEMATICS STRAND: PATTERNS, FUNCTIONS, AND ALGEBRAIC CONCEPTS				
GRADE: THIRD				
Identifies and creates patterns in all areas of math.		Finds, invents, and uses patterns to solve problems.		Describes and extends patterns numerically (e.g., on a 100s chart).
GRADE: FOURTH				
Explains patterns in factors, multiples, and unit fractions, emphasizing the anchor numbers 10 and 100 (e.g., $100 = 25 \times 4$; $100 = 10 \times 10$).		Finds patterns by organizing data in T-charts and describes the growing pattern numerically.		Selects appropriate operational and relational symbols to make an expression true (e.g., $4 _ 3 = 7$; $4 + 3 = 7$).
Identifies and extends a growing pattern with symbols, patterns and numbers and writes a numerical description.		Represents the idea of a variable as an unknown quantity using a letter or a symbol (e.g., $3 + ? = 7$; $3 + _ = 7$; $3 + a = 7$).		
GRADE: FIFTH				
Predicts a slot in a sequence or growing pattern of numbers (e.g., 2, 4, 6, 8, ... Give the next number.).		Uses T-charts to represent patterning with functions.		Investigates the concept of balance in equations (e.g., $7 + 3 = 3 + x$).
Describes and graphs the difference between patterns with the same (constant) rate of change and those with unsteady (varying) rates of change.		Uses patterns and numerical rules to represent and solve problems.		

Forms a hypothesis about and tests a rule for the pattern in a sequence of numbers (e.g., What is the 10 th number in this sequence: 4, 9, 14, 19...?).		Uses variables and open sentences to express simple, single-step algebraic equations (e.g., $2 + n = 5$).			
APS MATHEMATICS STRAND: NUMBER SENSE AND OPERATIONS					
GRADE: THIRD					
Reads, writes, models and orders numbers to 1,000.		Uses and explains standard addition and subtraction notation (i.e., equations) to represent word problems.		Solves addition/subtraction problems with a variety of givens and unknowns.	
Estimates quantities up to 1,000 in a variety of problem-solving situations and explains the strategy used (e.g., anchor numbers).		Models concepts of addition and subtraction of two- and three-digit numbers, with and without regrouping, in a variety of ways.		Models, represents, and explains multiplication and division equations and situations using words, pictures, manipulatives, etc.	
GRADE: FOURTH					
Reads, writes, and orders numbers to 10,000.		Finds and counts by factors of 100 and 1,000 and uses them to explain the structure of 10,000.		Estimates and solves multiplication/division problems involving multi-digit numbers multiplied/divided by one-digit numbers using a variety of efficient strategies [e.g., mental math, anchor numbers, distributive property (decomposing and recombining)] and determines if the answer is reasonable.	
Estimates quantities up to 10,000 in a variety of situations and explains the strategy used.		Estimates and solves addition and subtraction problems using a variety of strategies (e.g., mental math, calculators, spreadsheets, anchor numbers, and pencil/paper).		Solves multiplication and division problem situations with a variety of givens and unknowns (e.g., $4 \times 3 = ?$, $3 \times ? = 12$).	

GRADE: FIFTH					
Reads, writes, orders, and compares numbers to 1,000,000.		Develops, compares, and selects a strategy that is efficient and accurate when solving addition, subtraction, multiplication, and division problems.		Estimates and solves problems involving sums, differences, products, and quotients and justifies the reasonableness of the solutions.	
Estimates quantities up to 1,000,000 in a variety of situations, and explains the strategies used.		Selects the appropriate operation involving addition, subtraction, multiplication, and division from situational story problems, and uses relationships among the four basic operations to solve them.			
APS MATHEMATICS STRAND: GEOMETRY, SPATIAL SENSE, AND MEASUREMENT					
GRADE: THIRD					
Represents and solves problems using geometric models.		Compares and measures objects with respect to a given attribute (e.g., length, area, perimeter, volume, weight).		Selects and uses standard measurement units in everyday situations.	
Uses knowledge of geometry to develop spatial visual skills.		Uses benchmarks (e.g., handspan, length of arm) to gain a sense of size of objects.			
GRADE: FOURTH					
Represents and solves real-world problems using geometric models.		Uses both U.S. and metric tools for linear measurement, volume, and mass.		Selects and uses the appropriate tool based on the type and size of the unit to be measured and explains the selection (e.g., square units are used for finding areas and cubic units are used for finding volume).	
GRADE: FIFTH					
Uses measures of money and time, U.S. and metric measures of length, weight, and volume to solve problems and makes estimates.		Carries out simple unit conversions, (e.g., from centimeters to meters) within a system of measurement.			

Mathematics Standards Matrix: Bridge Building on the Rio Grande – Grade 5

APS/RDA/CHF: Performance-Based Mathematics Assessment 2001-02

*Performance Standards are based on the APS K – 12 Mathematics Content and Performance Standards – Final 2001

APS MATHEMATICS STRAND: GLOBAL MATHEMATICAL PROCESSES

GRADE: KINDERGARTEN THROUGH TWELTH

Develops resourcefulness and perseverance in problem solving in mathematics and other disciplines.		Works in teams to share ideas, to develop and coordinate group approaches to problems, and to communicate findings.		Recognizes and applies mathematics in contexts outside the mathematics course.	
Recognizes when to use previously learned strategies to solve new problems.		Communicates mathematical thinking coherently and clearly to others.		Develops a repertoire of mathematical representation (e.g. pictures, written symbols, oral language, real-world situations, and manipulative models) that can be used purposefully and appropriately interchangeably.	
Develops and uses strategies (e.g., breaking complex problems into simpler parts) for solving given problems.		Analyzes and evaluates mathematical thinking and strategies of others.		Selects, applies, and translates among mathematical representations to solve problems.	
Monitors, discusses, and reflects on the process of mathematical problem solving.		Relates applications to mathematical language in various modalities.		Uses representations to model and interpret physical, social, and mathematical phenomena.	
Makes and investigates mathematical conjectures and uses them successfully in developing and evaluating mathematical arguments and proofs.		Identifies and connects functions with real-world applications.		Uses manipulatives, calculators, computers, and other tools as appropriate in order to strengthen mathematical thinking, understanding, and power to build upon foundational concepts.	