

Matrix: Riding at the Playground

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: NUMBER SENSE AND OPERATIONS					
GRADE: KINDERGARTEN					
Counts orally from 1 to 30 and backward from 10 to 1.		Connects numerals to the quantities they represent.		Combines and separates two single-digit numbers using pictures, stories, and objects to model the situation.	
Reads numerals to 20 in and out of sequence.		Demonstrates that the meaning of a number does not change no matter how objects are grouped.		Records numerical information using pictures, words, and/or numbers.	
Demonstrates one-to-one correspondence by keeping track of quantities while counting.		Combines and separates sets of objects with quantities and identifies the parts and the whole.			
Creates a set of a given size.		Represents numbers in a variety of equivalent ways (e.g., dots, pictures, numerals).			
GRADE: FIRST					
Reads, writes, and sequences numbers to 100.		Builds, estimates, and compares combinations of numbers to 20 in different ways using pictures, stories, and objects to model the combinations.		Develops strategies and estimation skills for solving addition and subtraction problems.	
Counts orally by 2s to 30 and by 5s and 10s to 100.		Finds the sum or difference of two quantities up to 20 using symbols in problem-solving situations (e.g., $12 + 5 = 17$, $12 - 5 = 7$).		Records strategies for solving, combining, and separating problems using pictures, numbers, equations, and words.	

Forms and counts groups of objects (e.g., 2s, 5s, 10s).		Examines the concept of ordered pairs by linking commonly paired relationships (e.g., How many legs do 3 chickens have?).			
Represents equivalent forms of the same number (i.e., part – part – whole) through the use of physical models, diagrams, and number expressions to 20 (e.g., $3+5=8$, $7+1=8$, $2+6=8$).		Demonstrates that the number of objects (up to 20) does not change when the objects are moved or rearranged.			
GRADE: SECOND					
Reads, writes and sequences numbers to 200.		Analyzes relationships of quantities to 20 using part – part – whole (e.g., $1+7$, $2+6$, $3+5$, $4+4$: all equal 8.).		Estimates sums and differences of one- and two-digit numbers and explains whether the answer is reasonable.	
Explains numbers to 1,000 using a variety of strategies (e.g., manipulatives, numbers, drawing, words).		Uses and explains multiple strategies to solve addition and subtraction problems, with and without re-grouping, using two-digit numbers.		Explains properties of addition (e.g., associative, commutative, and identity property of 0).	
Counts by 2s to 100, by 5s and 10s to 200 and by 100s to 1,000.		Decomposes and recombines numbers in logical ways to solve problems (e.g., $8+5 = (3+5)+5 = 3+(5+5) = 3+10=13$).			
Applies patterns in skip counting; compares and defends the relationship between skip counting, grouping, and equal sets.		Solves the two types of situational subtraction problems: comparing two sets of objects and separating parts from whole.			
APS MATHEMATICS STRAND: PATTERNS, FUNCTIONS, AND ALGEBRAIC CONCEPTS					
GRADE: KINDERGARTEN					
Identifies, describes, and extends patterns with familiar objects in both classroom and real-life situations.					

GRADE: FIRST				
Identifies, describes, creates, and extends patterns observed in familiar objects in real-life situations (e.g. 1 child = 2 eyes, 2 children = 4 eyes).		Describes how a pattern develops, repeats, and builds toward more complex patterns.		
GRADE: SECOND				
Describes, creates, and extends a wide variety of patterns.		Identifies patterns in the number system (e.g., 5, 10, 15...).		Develops and applies more complex patterns and relationships in real-life and mathematical problem situations.
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.

Mathematics Standards Matrix: Riding at the Playground – Grade 2

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

<p>Uses the concept of counterexample to test the legitimacy of an argument.</p>		<p>Identifies how seemingly different mathematical situations may be essentially the same (e.g. the intersection of two lines is the same as the solution to a system of linear equations).</p>			
<p>Develops a logical sequence of arguments leading to a valid conclusion or solution to a problem (e.g., statement/reasons, proof, informal proof, and algebraic steps).</p>		<p>Investigates and explains the mathematics required for various careers.</p>			