

**USD 203 Piper Curriculum  
Mathematics**

**Grade K**

Standard	Benchmark	KSMS Knowledge Base Indicator	KSMS Application Indicator
<b>1--NUMBERS &amp; COMPUTATION</b>			
	<b>1--Number Sense</b>		
		1.1.1K. Establishes a one-to-one correspondence with whole numbers from 0 through 20 using concrete objects and identifies, states, and writes the appropriate cardinal number (2.4.K1a) \$.	1.1.1A. Solves real-world problems using equivalent representations and concrete objects to compare and order whole numbers from 0 through 10 (2.4.A1a) \$.
		1.1.2 K. Compares and orders whole numbers from 0 through 20 using concrete objects (2.4.K1a) \$.	
		1.1.3K. Recognizes a whole, a half, and parts of a whole using concrete objects (2.4.K1a,c) \$.	
		1.1.4K. Identifies positions as first and last (2.4.K1a).	
		1.1.5K. Identifies pennies and dimes and states the value of the coins using money models (2.4.K1d) \$..	
	<b>2--Number Systems and their Properties</b>		
		1.2.1K. Reads and writes whole numbers from 0 through 20 in numerical form \$.	1.2.1A. Solves real-world problems with whole numbers from 0 through 20 using place value models (2.4.A1b) \$.
		1.2.2K. Represents whole numbers from 0 through 20 using place value models (2.4.K1b) \$.	1.2.2A. Counts forwards and backwards from a specific whole number using a number line from 0 through 10 (2.4.A1a).
		1.2.3K. Counts (2.4.K1a) \$:	
		a. whole numbers from 0 through 20,	
		b. whole numbers from 10 to 0 backwards,	
		c. subsets of whole numbers from 0 through 20.	
		1.2.4K. Groups objects by 5s and by 10s (2.4.K1a).	
		1.2.5K. <b>Uses</b> the <b>concept</b> of the zero property of addition (additive identity) with whole numbers from 0 through 20 and demonstrates its meaning using concrete objects (2.4.K1a) \$.	
	<b>3--Estimation</b>		
		1.3.1K. Determines if a group of 20 concrete objects or less has more, less or about the same number of concrete objects as a second set of the same kind of objects (2.4.K1a) \$.	1.3.1A. Compares two randomly arranged groups of 10 concrete objects or less and states the comparison using the terms: more, less, about the same (2.4.A1a).

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	<b>4--Computation</b>		
		1.4.1K. Adds and subtracts using whole numbers from 0 through 10 and various mathematical models (2.4.K1a) \$.	1.4.1A. Solves one-step real-world addition or subtraction problems with whole numbers from 0 through 10 using concrete objects in various groupings and explains reasoning (2.4.A1a) \$.
		1.4.2K. Uses repeated addition (multiplication) with whole numbers to find the sum when given the number of groups (three or less) and given the same number of <b>concrete objects</b> in each group (five or less) (2.4.K1a).	
		1.4.3K. Uses repeated subtraction (division) with whole numbers when given the total number of <b>concrete objects</b> in each group to find the number of groups (2.4.K1a).	
<b>2--ALGEBRA</b>			
	<b>1--Patterns</b>		
		2.1.1K. Uses concrete objects, drawings, and other representations to work with <b>types</b> of patterns (2.4.K1a):	2.1.1A. Generalizes the following patterns using pictorial, and/or oral descriptions including the use of concrete objects:
		a. repeating patterns,	
		b. growing (extending) patterns.	b. patterns using geometric shapes with one attribute change (2.4.A1c).
		2.1.2K. Uses these <b>attributes</b> to generate patterns:	2.1.2A. Recognizes multiple representations of the AB pattern (2.4.A1a).
		a. whole numbers (2.4.K1a).	
		b. geometric shapes with one attribute change (2.4.K1e),	
		c. things related to daily life (2.4.K1a)	
		2.1.3K. Identifies and continues a pattern presented in various formats including number (list or table), visual (picture, table or graph), verbal (oral description), and kinesthetic (action) (2.4.K1a) \$.	2.1.3A. Uses concrete objects to model a whole number pattern (2.4.A1a):
		2.1.4K. Generates (2.4.K1a):	a. counting by ones ;
			b. counting by twos ;
			c. counting by tens.

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		a. repeating patterns for the AB pattern, the ABC pattern, and the AAB pattern;		
		b. growing (extending) patterns that add 1, 2, or 10 to continue the pattern.		
		2.1.5K. Classifies and sorts concrete objects by similar attributes (2.4.K1a) \$.		
		<b>2--Variables, Equations, and Inequalities</b>		
			2.2.1K. Finds the unknown sum using basic facts with sums through 10 using concrete objects and pictures (2.4.K1a) \$.	2.2.1A. Describes real-world problems using concrete objects and pictures and basic facts with sums through 10 (2.4.A1a)\$.
		<b>3--Functions</b>		
			2.3.1K. Locates whole numbers from 0 through 20 on a number line (2.4.K1a).	2.3.1A. Represents and describes mathematical relationships for whole numbers from 0 through 10 using concrete objects, pictures, and oral descriptions (2.4.A1a) \$.
		<b>4--Models</b>		
			2.4.1K. Knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include:	2.4.1A. Recognizes that various mathematical models can be used to represent the same problem situation. Mathematical models include:
			a. process models (concrete objects, pictures, number lines, unifix cubes, measurement tools, or calendars) to model computational procedures and mathematical relationships, to compare and order numerical quantities, and to represent fractional parts (1.1.K1-4, 1.2.K3-5, 1.3.K1, 1.4.K1-3, 2.1.K1,2.1.K2a, 2.1.K2c, 2.1.K3-5, 2.2.K1, 2.3.K1, 3.1.K2, 3.2.K1-3, 3.3.K1-2, 3.4.K1-2) \$;	a. process models (concrete objects, pictures, number lines, unifix cubes, measurement tools, or calendars) to model computational procedures and mathematical relationships, to compare and order numerical quantities, and to problem situations (1.1.A1, 1.2.A2,1.3.A1, 1.4.A1, 2.1.A1a, 2.1.A2-3, 2.2.A1, 2.3.A1, 3.1.A3, 3.2.A1-2, 3.3.A1-2, 3.4.A1 ) \$;
		b. place value models (ten frames, unifix cubes, bundles of straws, or base ten blocks) to represent numerical quantities (1.2.K2) \$;	b. place value models (ten frames, unifix cubes, bundles of straws, or base ten blocks) to represent numerical quantities (1.2.A1) \$;	
		c. fraction models (fraction strips or pattern blocks) to represent numerical quantities (1.1.K3) \$;	d. two-dimensional geometric models (geoboards, dot paper, or attribute blocks), three-dimensional geometric models (solids), and real-world objects to compare size and to model attributes of geometric shapes (3.1.A1-2) ;	

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		d. money models (base ten blocks or coins ) to represent numerical quantities (1.1.K5) \$;	e. two-dimensional geometric models (spinners), three-dimensional geometric models (number cubes), and concrete objects to model probability (4.1.A1);
		e. two-dimensional geometric models (geoboards, dot paper, or attribute blocks), three-dimensional geometric models (solids), and real-world objects to compare size and to model attributes of geometric shapes (2.1.K1a, 3.1.K3) ;	f. graphs and tables including the use of concrete objects to organize and display data (4.1.A1, 4.2.A1) \$.
		f. two-dimensional geometric models (spinners), three-dimensional geometric models (number cubes), and concrete objects to model probability (4.1.K1-2) \$;	
		g. graphs and tables including the use of concrete objects to organize and display data (4.2.K1-3) \$.	
		2.4.2.K Uses concrete objects, pictures, drawings, diagrams, or dramatizations to show the relationship between two or more things \$.	
<b>3--GEOMETRY</b>			
	<b>1--Geometric Figures and their Properties</b>		
		3.1.1K. Recognizes circles, squares, rectangles, triangles, and ellipses (ovals),(plane figures/two dimensional figures) (2.4.K1e).	3.1.1A. Demonstrates how several plane figures (circles, squares, rectangles, triangles, ellipses ) can be combined to make a new shape (2.4.A1c).
		3.1.2K. Recognizes and investigates attributes of circles, squares, rectangles, triangles, and ellipses using concrete objects, drawings, and/or appropriate technology (2.4.K1a,e).	3.1.2A. Sorts by one attribute real-world geometric shapes that are representations of the solids (cubes, rectangular prisms, cylinders, cones, spheres) (2.4.A1c).
		3.1.3K. Sorts cubes, rectangular prisms, cylinders, cones, and spheres (solids/three-dimensional figures) by their attributes using concrete objects (2.4.K1e).	3.1.3A. Recognizes (2.4.A1a):
			a. circles, squares, rectangles, triangles, and ellipses (plane figures) within a picture;
			b. cubes, rectangular prisms, cylinders, cones, and sphere (solids) within a picture.
	<b>2--Measurement and Estimation</b>		
		3.2.1K. Uses whole number approximations (estimations) for length using nonstandard units of measure (2.4.K1a) \$.	3.2.1A. Compares and orders concrete objects by length or weight (2.4.A1a) \$.

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		3.2.2K. Compares two measurements using these attributes (2.4.K1a) \$:	3.2.2A. Locates and names concrete objects that are about the same length or weight as a given concrete object (2.4.A1a) \$.
		a. longer, shorter (length);	
		b. taller, shorter (height);	
		c. heavier, lighter (weight);	
		d. hotter, colder (temperature).	
	3.2.3K. Reads and tells time at the hour using analog and digital clocks (2.4.K1a).		
	<b>3--Transformational Geometry</b>		
		3.3.1K. Describes the spatial relationship between two concrete objects using appropriate vocabulary (2.4.K1a).	3.3.1A. Shows two concrete objects or shapes are congruent by physically fitting one object or shape on top of the other (2.4.A1a).
		3.3.2K. Identifies two like objects or shapes from a set of four objects or shapes (2.4.K1a).	3.3.2A. Follows directions to move concrete objects from one location to another using appropriate vocabulary (2.4.A1a).
	<b>4--Geometry from an Algebraic Perspective</b>		
	3.4.1K. Locates and plots whole numbers from 0 through 20 on a horizontal number line (2.4.K1a).	3.4.1A. Solves real-world problems involving counting whole numbers from 0 through 20 using a number line (2.4.A1a) \$.	
	3.4.2K. Counts forwards and backwards from a given whole number from 0 through 10 on a number line (2.4.K1a).		
<b>4--DATA</b>			
	<b>1--Probability</b>		
		4.1.1K. Recognizes whether an event is impossible or possible (2.4.K1f) \$.	4.1.1A. Conducts an experiment or simulation with a simple event and records the results in a graph using concrete objects or frequency tables (tally marks) (2.4.A1a,d-e).
		4.1.2K. Recognizes and states whether a simple event in an experiment or simulation including the use of concrete objects can have more than one outcome (2.4.K1a,f).	
	<b>2--Statistics</b>		

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		<p>4.2.1K. Records numerical (quantitative) and non-numerical (qualitative) data including concrete objects, graphs, and tables using these data displays (2.4.K1a,g) \$:</p> <p>a. graphs using concrete objects;</p> <p>b. pictographs with a whole symbol or picture representing one (no partial symbols or picture);</p> <p>c. frequency tables (tally marks).</p> <p>4.2.2K. Collects data related to familiar everyday experiences by counting and tallying (2.4.K1a,g) \$.</p> <p>4.2.3K. Determines the mode (most) after sorting by one attribute (2.4.K1a,g) \$.</p>	<p>4.2.1A. Communicates the results of data collection from graphs using concrete objects and frequency tables (2.4.A1e) \$.</p>