

Park County School District #6

K-12 Curriculum Pacing Guide

4th Grade/Course Math Outcomes with Expressions Units

Code	Outcomes	Time Frame*	Assessment Period **			
			1	2	3	4
M.4.4 Unit 1	Students will use place value understanding to compare multi-digit whole numbers up to 999,999.	Aug-Oct	x			
M.4.5 Unit 1	Students will fluently add and subtract multi-digit whole numbers up to 999,999 using standard algorithm.	Aug-Oct	x			
M.4.6 Unit 2	Students will multiply multi-digit whole numbers using strategies based on place value and properties of operations.	Aug-Oct	x			
M.4.7 Unit 3	Students will divide multi-digit numbers by one-digit number using strategies based on place value and properties of operations.	Aug-Oct	x			
M.4.9 Unit 6	Students will solve word problems involving addition and subtraction of fractions and mixed numbers.	Oct-Feb		x		
M.4.10 Unit 6	Students will multiply a fraction by a whole number.	Oct-Feb		x		
M.4.8 Unit 7	Students will compare and create equivalent fractions.	Oct-Feb		x		
M.4.11 Unit 7	Students will compare fractions and decimals to the hundredths place value.	Oct-Feb		x		
M.4.1 Unit 4	Students will use the four operations with whole numbers to solve problems.	Feb-May			X	
M.4.2 Unit 4	Students will find factors and determine multiples for numbers 1-100.	Feb-May			X	
M.4.3 Unit 4	Students will generate and analyze a number pattern that follows a given rule.	Feb-May			X	
M.4.12 Unit 5	Students will solve problems involving measurement and conversion of measurements.	Feb-May			X	
M.4.13 Unit 8	Students will describe, measure, and solve for unknown angles.	Feb-May			X	
M.4.14 Unit 8	Students will classify shapes by the properties of their lines and angles.	Feb-May			X	

Teach Units 4 and 5 in order and assess in Tri 3.

revised 8/17/15

*Elementary & CMS will designate time frame by months; CHS will designate time frame by weeks.

**Elementary will complete by trimesters 1, 2, and 3. CMS will complete by quarters 1, 2, 3 and 4. CHS will complete by nine week periods 1 and 2.

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4th Grade Outcomes & Components in Pacing Guide Order

Number and Operations in Base Ten		
M.4.4	Outcome: Students will use place value understanding to compare multi-digit whole numbers up to 999,999.	
	Students will...	
	M.4.4.1	explain how a digit in one place value is 10 times greater than that of the place value to the right. (4.NBT.1) <i>Instructional Example: In 473 the 7 is ten times greater than the 7 in 437.</i>
	M.4.4.2	write multi-digit whole numbers using base-ten numerals, number names, and expanded form. (4.NBT.2)
	M.4.4.3	round multi-digit whole numbers. (4.NBT.3)
	M.4.4.4	compare two multi-digit numbers using $<$, $>$, and $=$ symbols. (4.NBT.2)

Number and Operations in Base Ten		
M.4.5	Outcome: Students will fluently add and subtract multi-digit whole numbers up to 999,999 using standard algorithm.	
	Students will...	
	M.4.5.1	fluently add numbers up to 999,999. (4.NBT.4)
	M.4.5.2	fluently subtract numbers up to 999,999. (4.NBT.4)

Number and Operations in Base Ten		
M.4.6	Outcome: Students will multiply multi-digit whole numbers using strategies based on place value and properties of operations.	
	Students will...	
	M.4.6.1	multiply a four-digit whole number by a one-digit whole number. (4.NBT.5)
	M.4.6.2	multiply two two-digit numbers. (4.NBT.5)
	M.4.6.3	illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (4.NBT.5)

Number and Operations in Base Ten		
M.4.7	Outcome: Students will divide multi-digit numbers by one-digit number using strategies based on place value and properties of operations.	
	Students will...	
	M.4.7.1	divide two-digit dividends by one-digit divisors to find

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		quotients with or without remainders and prove with multiplication.
	M.4.7.2	divide three-digit dividends by one-digit divisors to find quotients with or without remainders and prove with multiplication.
	M.4.7.3	divide four-digit dividends by one-digit divisors to find quotients with or without remainders and prove with multiplication. (4.NBT.6)
	M.4.7.4	illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (4.NBT.6)

Number and Operations in Fractions		
M.4.9	Outcome: Students will solve word problems involving addition and subtraction of fractions and mixed numbers.	
	Students will...	
	M.4.9.1	decompose a fraction into a sum of fractions with the same denominator in more than one way. (4.NF.3b)
	M.4.9.2	add and subtract fractional parts from the same whole. (4.NF.3a)
	M.4.9.3	convert mixed numbers into improper fractions and improper fractions into mixed numbers.
	M.4.9.4	add and subtract mixed numbers with like denominators. (4.NF.3c)
	M.4.9.5	solve problems involving addition and subtraction of fractions by using information presented in line plots. (4.MD.4) <i>Instructional Example: From a line plot, find and interpret the difference in length between the longest and shortest specimens in an insect collection.</i>
	M.4.9.6	solve word problems involving addition and subtraction of fractions and mixed numbers having like denominators. (4.NF.3d)

Number and Operations in Fractions		
M.4.10	Outcome: Students will multiply a fraction by a whole number.	
	Students will...	
	M.4.10.1	write a multiplication expression for fractions with numerators greater than 1. (4.NF.4a) <i>Instructional Example: Use a visual model to represent $\frac{2}{4}$ as $2 \times \frac{1}{4}$ or $\frac{5}{4}$ as $5 \times \frac{1}{4}$.</i>
	M.4.10.2	multiply a fraction by a whole number. (4.NF.4b)

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		<i>Instructional Example: Use a visual model to express $3 \times \frac{2}{5}$ as $6 \times \frac{1}{5} = \frac{6}{5}$.</i>
	M.4.10.3	solve word problems involving multiplication of a fraction by a whole number. (4.NF.4c)

Number and Operations in Fractions		
M.4.8	Outcome: Students will compare and create equivalent fractions.	
	Students will...	
	M.4.8.1	explain and create equivalent fractions using visual models. (4.NF.1)
	M.4.8.2	create equivalent fractions by multiplying using the multiplicative identity property. (4.NF.1)
	M.4.8.3	compare two fractions with like denominators and unlike numerators using $<$, $>$, and $=$ symbols. (4.NF.2)
	M.4.8.4	compare two fractions using a benchmark fraction, such as $\frac{1}{2}$ using $<$, $>$, and $=$ symbols. (4.NF.2)
	M.4.8.5	make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). (4.MD.4)
	M.4.8.6	explain how comparisons are only valid when the two fractions refer to the same whole. (4.NF.2) <i>Instructional Example: $\frac{1}{4}$ of a Hershey bar is larger than $\frac{1}{4}$ of an M&M because they don't refer to the same whole.</i>
	M.4.8.7	compare two fractions with unlike denominators by creating common denominators using the $<$, $>$, and $=$ symbols. (4.NF.2)

Number and Operations in Fractions		
M.4.11	Outcome: Students will compare fractions and decimals to the hundredths place value.	
	Students will...	
	M.4.11.1	write fractions with denominators of 10 as an equivalent fraction with denominators of 100. (4.NF.5)
	M.4.11.2	add two fractions with denominators of 10 or 100. (4.NF.5) <i>Instructional Example: In the problem $\frac{3}{10} + \frac{4}{100}$, express $\frac{3}{10}$ as $\frac{30}{100}$, then add $\frac{30}{100} + \frac{4}{100} = \frac{34}{100}$.</i>
	M.4.11.3	write fractions with denominators of 10 or 100 as decimals. (4.NF.6)
	M.4.11.4	compare two decimals to the hundredths place value using the $<$, $>$, and $=$ symbols and justify with visual

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		models. (4.NF.7)
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Operations and Algebraic Thinking		
M.4.1	Outcome: Students will use the four operations with whole numbers to solve problems.	
	Students will...	
	M.4.1.1	demonstrate multiplicative comparisons by writing multiplication equations from verbal statements. (4.OA.1) <i>Instructional example: Students will write $35=5 \times 7$ from a statement "35 is 5 times as many as 7 and 7 times as many as 5".</i>
	M.4.1.2	solve multiplication word problems with a symbol for the unknown number. (4.OA.2)
	M.4.1.3	solve division word problems with a symbol for the unknown number including remainders. (4.OA.2)
	M.4.1.4	apply mental computation and estimation strategies including rounding to check reasonableness of answers to word problems. (4.OA.3)
	M.4.1.5	apply the formula for perimeter of rectangles in real world and mathematical problems. (4.MD.3)
	M.4.1.6	apply the formula for area of rectangles in real world and mathematical problems. (4.MD.3)
	M.4.1.7	solve multi-step word problems with a symbol for the unknown number using the four operations. (4.OA.3)

Operations and Algebraic Thinking		
M.4.2	Outcome: Students will find factors and determine multiples for numbers 1-100.	
	Students will...	
	M.4.2.1	identify a factor of a given whole number in the range of 1-100. (4.OA.4)
	M.4.2.2	find all factor pairs for a whole number in the range of 1-100. (4.OA.4)
	M.4.2.3	determine whether a given whole number in the range of 1-100 is a multiple of a given one-digit number. (4.OA.4)
	M.4.2.4	determine whether a given whole number in the range of 1-100 is prime or composite. (4.OA.4)

Operations and Algebraic Thinking		
M.4.3	Outcome: Students will generate and analyze a number pattern that	

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	follows a given rule.
	Students will...
M.4.3.1	identify a number pattern within a list.
M.4.3.2	identify multiple observations of a pattern. <i>For example, "all the terms are even and count by 2s".</i>
M.4.3.3	generate a number pattern that follows a given rule and analyze apparent features of the pattern that were not explicit in the rule itself. (4.OA.5) <i>Instructional Example: Given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers.</i>

Measurement and Data	
M.4.12	Outcome: Students will solve problems involving measurement and conversion of measurements.
	Students will...
M.4.12.1	identify relative size of measurement units within one system including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. (4.MD.1)
M.4.12.2	convert larger units into smaller units by recording equivalents in a two-column table. (4.MD.1)
M.4.12.3	solve word problems involving simple fractions and decimals that require expressing metric and standard measurements given in larger units in terms of smaller units. (4.MD.2) <i>Instructional Example: How many feet in 1/3 yard or how many centimeters in 1.5 meter?</i>
M.4.12.4	use the four operations to solve word problems involving various measurement units (distances, intervals of time, liquid volumes, masses of objects, and money) that require expressing larger units in terms of smaller units. (4.MD.2)

Measurement and Data	
M.4.13	Outcome: Students will describe, measure, and solve for unknown angles.
	Students will...
M.4.13.1	identify two rays with a common endpoint as an angle. (4.MD.5)
M.4.13.2	name angles as acute, obtuse, right, straight, or zero.
M.4.13.3	examine angles as part of a 360 degree circle to

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		determine the measure of the degrees. (4.MD.5a)
	M.4.13.4	measure angles in whole-number degrees using a protractor. (4.MD.6)
	M.4.13.5	solve addition and subtraction problems to find unknown angles on a diagram in a real world problem. (4.MD.7)

Geometry		
M.4.14	Outcome: Students will classify shapes by the properties of their lines and angles.	
	Students will...	
	M.4.14.1	draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. (4.G.1)
	M.4.14.2	identify points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines in two-dimensional figures. (4.G.1)
	M.4.14.3	identify a right triangle. (4.G.2)
	M.4.14.4	identify and draw lines of symmetry in two-dimensional figures. (4.G.3)
	M.4.14.5	classify two-dimensional figures based on parallel lines, perpendicular lines, and angles. (4.G.2)