

## Eads Elementary School Math Standards 5<sup>th</sup> Grade

### **MATH STANDARD #1**

Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.

<b>Ref.</b>	<b>Expectation</b>	<b>P</b>	<b>PP</b>	<b>NI</b>	<b>US</b>
5.1.a.	Locate commonly-used positive rational numbers, including fractions, mixed numbers, terminating decimals through thousandths, and percents, on the number line.				
5.1.b.	Use concrete materials; demonstrate the meaning of integers.				
5.1.c.	Use concrete materials, demonstrate the equivalence of commonly-used fractions, terminating decimals, and percents.				
5.1.d.	Pictorially, demonstrate the meaning of square numbers.				
5.1.e.	Read, write, and order positive rational numbers, including commonly-used fractions and terminating decimals through thousandths.				
5.1.f.	Compare commonly-used proper fractions and terminating decimals using the symbols =, *, <, >.				
5.1.g.	Identify factors, multiples, and prime composite numbers..				
5.1.h.	Write the prime factorization of whole numbers up to 50 (eg: $36=2 \times 2 \times 3 \times 3$ )				
5.1.i.	Write whole numbers in expanded form without powers of ten.				
5.1.j.	Demonstrate $a^n = a \times a \times \dots \times a$ , where 'a' and 'n' are counting numbers.				
5.1.k.	Demonstrate the divisibility rules for 2, 5, and 10.				
5.1.l.	Demonstrate the meaning of ratio in different contexts.				
5.1.m.	Use appropriate notation to express ratios, including a/b, a to b, and a:b.				
5.1.n.	Demonstrate the commutative, associative, and identity properties for addition and multiplication property of zero for fractions.				
5.1.o.	Estimate sums and differences of fractions and decimals using benchmarks (eg: $5/6+7/8$ must be equal to an amount less than 2, since each fraction is less than 1).				
5.1.p.	Estimate, using appropriate techniques, determine, and then, justify the reasonableness of solutions to problems involving whole numbers.				

### **MATH STANDARD #2**

Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.

<b>Ref.</b>	<b>Expectation</b>	<b>P</b>	<b>PP</b>	<b>NI</b>	<b>US</b>
5.2.a.	Represent, describe, and analyze patterns for relationships involving whole numbers and common proper fractions.				
5.2.b.	Recognize that a variable is used to represent an unknown quantity.				
5.2.c.	Solve problems from patterns involving whole numbers and common proper fractions using tables, graphs, and rules.				
5.2.d.	In any functional relationship involving positive rational numbers and common proper fractions, describe how a change in one quantity affects the				

	other.				
5.2.e.	Graph discrete linear and nonlinear functions.				
5.2.f.	Match a description of a situation with its continuous graph.				

**MATH STANDARD #3:**

Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning and processes using in solving these problems

<b>Ref.</b>	<b>Expectations</b>	<b>P</b>	<b>PP</b>	<b>NI</b>	<b>US</b>
5.3.a.	Differentiate between categorical and numerical data.				
5.3.b.	Organize and display data using appropriate graphs, such as bar, line, circle, etc.				
5.3.c.	Read, interpret, and draw conclusions from various displays of data.				
5.3.d.	Determine the mean of a set of data using manipulatives.				
5.3.e.	Informally distinguish between mean, median, and mode.				
5.3.f.	Determine the range of a set of data.				
5.3.g.	Given various displays of the same set of data (bar, line, circles, etc.) determine which measure of central tendency is most evident.				
5.3.h.	Critically evaluate bar graphs, line graphs, pictographs, etc. which do not begin at zero.				
5.3.i.	Distinguish between a census and a survey.				
5.3.j.	Explain why there may be differences in the data of two or more samples.				
5.3.k.	Apply probability terms such as event, outcome, trials, and sample space.				
5.3.l.	Assign a number between 0 and 1, inclusive, to the probability of an event.				
5.3.m.	Perform experiments of independent compound events to estimate probability.				
5.3.n.	Predict the probability of independent compound events, such as tossing two coins or determining the gender of two children in a family, and conduct an experiment or simulation to determine the probability.				
5.3.o.	Demonstrates that the sum of the probabilities equals one.				
5.3.p.	Using one chance device, such as number cube or spinner, design a fair game and an unfair game, and write directions for each game.				
5.3.q.	Determine the number of outcomes of independent compound events, such as tossing two coins or determining the gender of two children in a family by making a list or tree diagram.				

**MATH STANDARD #4:**

Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.

<b>Ref.</b>	<b>Expectation</b>	<b>P</b>	<b>PP</b>	<b>NI</b>	<b>US</b>
5.4.a.	Using a straight edge and a compass, paper folding, or computer software application, demonstrate the geometric construction of copying a segment and copying an angle.				
5.4.b.	Build models of rectangular prisms.				
5.4.c.	Given a three-dimensional model built with cubes, draw the two-dimensional orthogonal drawings (front view, right side view, and top view) and,				

	conversely, given orthogonal drawings, build the model.				
5.4.d.	Describe, analyze, and reason informally about the properties (eg: parallelism, perpendicularity, congruence) of two-and three-dimensional figures.				
5.4.e.	Know that the measurement of an acute angle is less than 90 degrees, a right angle is 90 degrees, and an obtuse angle is greater than 90 degrees.				
5.4.f.	Use correct geometric symbols for lines, segments, rays, and angles.				
5.4.g.	Reason informally about properties of parallel lines, perpendicular lines, intersecting lines, line segments, and rays.				
5.4.h.	Reason informally about properties (including lines of symmetry) of rectangles, squares, triangles (named by both lengths of sides and angles), and rectangular prisms.				
5.4.i.	Reason informally about congruence involving rectangles, squares, triangles, and rectangular prisms.				
5.4.j.	Set up coordinate graph (include axis, origin, and scale) and use it to mark and read coordinate pairs in the first quadrant.				
5.4.k.	From a scenario, choose the correct graph from given possible graph representations.				
5.4.l.	Given a distance, find pairs of points on the coordinate plane in the first quadrant separated by that horizontal or vertical distance.				
5.4.m.	Solve problems involving perimeter and area of rectangles, squares, and triangles.				
5.4.n.	Solve problems involving volume of rectangular prisms.				
5.4.o.	Use pattern blocks to tile plane.				
5.4.p.	Show lines of symmetry of geometric shapes.				

**MATH STANDARD #5:**

Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.

<b>Ref.</b>	<b>Expectations</b>	<b>P</b>	<b>PP</b>	<b>NI</b>	<b>US</b>
5.5.a.	Estimate the length of the sides and height of rectangles, squares, triangles, and rectangular prisms.				
5.5.b.	Estimate the perimeter and area of rectangles, squares, and triangles.				
5.5.c.	Estimate the volume of rectangular prisms.				
5.5.d.	Continue to estimate and use the capacity, weight, and mass measurements from previous grades.				
5.5.e.	Estimate measures of angles (eg; 30, 45, 60, 90,120, 150, 180 degrees).				
5.5.f.	Compare the estimates and measurements obtained.				
5.5.g.	Read and interpret scales on number lines, graphs, and maps.				
5.5.h.	Select the appropriate scale for a given problem.				
5.5.i.	Develop and use formulas for perimeter and area of rectangles, squares, and triangles using appropriate units.				
5.5.j.	Develop and use the formula for volume of rectangular prisms using appropriate units.				
5.5.k.	Describe how changes in one of the dimensions of a rectangle affects its perimeter and area.				

5.5.l.	Using graph paper, demonstrate the changes in area of a rectangle having a constant perimeter and variable side lengths.				
5.5.m.	Select and use the appropriate units and tools to measure to the degree of accuracy required in a particular problem.				
5.5.n.	Measure the length of the sides and heights of rectangles, squares, triangles, and rectangular prisms to the nearest inch and centimeter.				
5.5.o.	Measure and draw angles using a protractor (30, 45, 60, 90, 120, 150, 180 degrees).				

**MATH STANDARD #6:**

Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems

Ref.	Expectations	P	PP	NI	US
5.6.a.	Use appropriate notations of ratio such as a/b, a to b, and a:b.				
5.6.b.	Using concrete materials, determine commonly-used percentages (eg: 25% and 50%) in real-world problems.				
5.6.c.	Demonstrate order of operations with whole numbers.				
5.6.d.	Demonstrate with proficiency multiplication of whole numbers of three digits by two digits and three digits by three digits.				
5.6.e.	Demonstrate with proficiency division of whole numbers with a two-digit divisor.				
5.6.f.	Demonstrate equivalencies and simplification of proper fractions.				
5.6.g.	Using paper-and-pencil, demonstrate addition and subtraction of proper fractions and mixed numerals with common denominators and without regrouping.				
5.6.h.	Using concrete materials, demonstrate addition and subtraction of a mixed numerals with common denominators with regrouping.				
5.6.i.	Using concrete materials, demonstrate addition and subtraction of proper fractions with unlike denominators.				
5.6.j.	Demonstrate the inverse relationship of addition and subtraction of proper fractions and mixed numerals with common denominators.				
5.6.k.	Demonstrate how the value of a fraction changes as the denominator increases.				
5.6.l.	Demonstrate with proficiency addition and subtraction of decimals.				
5.6.m.	Demonstrate the inverse relationship of addition and subtraction of decimals.				
5.6.n.	Make change from any dollar denomination.				
5.6.o.	Determine from real-world problems whether an estimated or exact answer is acceptable.				
5.6.p.	Use estimation techniques before performing operations.				
5.6.q.	Determine whether information given in a problem-solving situation is sufficient, insufficient, or extraneous.				
5.6.r.	Given a real-world problem-solving situation, use the correct operation and appropriate method (mental arithmetic, estimation, paper-and-pencil, calculator, or computer) to solve the problem.				
5.6.s.	Given a math sentence, using the four operations with whole numbers, create and illustrate a real-world problem.				
5.6.t.	In a problem-solving situation, determine whether the results are reasonable and justify those results with correct computations.				

**COLORADO CSAP TEST PERCENTAGES BY STANDARD  
MATH**

<b><u>Standard</u></b>	<b><u>Grade 5</u></b>	<b><u>Grade 6</u></b>	<b><u>Grade 7</u></b>	<b><u>Grade 8</u></b>	<b><u>Grade 9</u></b>	<b><u>Grade 10</u></b>
	% Items	% Items	% Items	% Items	% Items	% Items
1	20	20	30	25	20	20
6	20	15				
2	20	20	20	25	30	30
3	20	20	20	20	25	25
4 and 5	20	25	30	30	25	25

Adopted Spring 2003