WWPS Promise Standards
K-8 Math

In Walla Walla Public Schools, we operate in an aligned and coherent system. This means students will receive access to the same promise standards no matter which school they attend. During the summer of 2019, K-8 teachers came together to identify 8-12 promise standards per grade level to ensure consistency across schools, and to ensure all students progress to the next level with the same foundation of skills. This document summarizes the standards for which all students will receive instruction and support to achieve proficiency. The color coding indicates similar domains across grade levels to see how skills progress.

> Counting and Cardinality (K), Fractions (3-5), Ratios (6-7) , Functions (8)
> Operations and Algebraic Thinking (K-5), Expressions and Equations (6-8)
> Numbers and Operations Base 10 (K-5), Number System (6-8)
> Measurement and Data (K-5)
> Geometry (K-8)

Kindergarten

- Count to 100 by ones and by tens.
- Understand the relationship between numbers and quantities; connect counting to cardinality
- Count to answer "how many?" questions up to 20 things.
- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.
- Compare two numbers between 1 and 10 when in written numerals.
- Solve addition and subtraction word problems, and add and subtract within 1.
- Fluently add and subtract within 5.
- Compose and decompose numbers from 11 to 19 into tens ones and some further ones.

First Grade

- Use addition and subtraction within 20 to solve word problems.
- Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.
- Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.
- Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.
- Count to 120, starting at any number less than 120. In this range, read and write numerals.
- Understand that the two digits of a two-digit number represent amounts of tens and ones.
- Add within 100, including adding a two-digit and one-digit number.
- Order three objects by length, compare the lengths of two objects indirectly using a third object.

Second Grade

- Use addition and subtraction within 100 to solve one-and two-step word problems.
- Fluently add and subtract within 20 using mental strategies.
- Fluently add and subtract within 100 using various strategies.
- Add and subtract within 1000, using various strategies
- Estimate lengths using units of inches, feet, centimeters, and meters.
- Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
- Solve word problems involving bills, quarters, dimes, nickels, and pennies, using $ and ¢ signs.
- Draw a picture graph and a bar graph to represent a data set with up to four categories. Solve simple problems using information presented in a bar graph.
- Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc. and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

Third Grade

- Understand a fraction as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction as the quantity formed by a part of size
- Understand a fraction as a number on the number line; represent fractions on a number line diagram.
- Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each.
- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division. By the end of Grade 3, know from memory all products of two one-digit numbers. (up to 9 x 9 memorized)
- Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
- Recognize area as an attribute of plane figures and understand concepts of area measurement
- Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length and exhibiting rectangles with the same perimeter and different areas or with the same area but different perimeters.

Fourth Grade

- Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using a various strategies
- Compare two fractions with different numerators and different denominators, by creating common denominators or numerators, or by comparing to a benchmark fraction, e.g. ½.
- Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Decompose a fraction into a sum of fractions with the same denominator in more than one way. Add and subtract mixed numbers with like denominators. Solve word problems involving addition and subtraction of fractions with like denominators.
- Compare two decimals to hundredths by reasoning about their size. Record the results of the comparisons with the symbols >,=, or < and justify the conclusions.
- Solve multistep word problems posed with whole numbers and having whole-number answers using four operations, including problems in which remainders must be interpreted.
- Recognize that in a multi-digit whole number, a digit in the one place represents ten times what it represents in the place to its right.
- Read and write multi-digit numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
- Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using various strategies.
- Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Fifth Grade

- Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions.
- Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
- Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
- Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
- Fluently multiply multi-digit whole numbers using the standard algorithm.
- Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.
- Read, write and compare decimals to thousandths.
- Add, subtract, multiply, and divide decimals to hundredths, using concreted models or drawings and a variety of strategies.
- Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
- Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plan, and interpret coordinate values of points in the context of the situation.

Grade 6

- Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
- Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship.
- Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
- Write expressions that record operations with numbers and with letters standing for numbers.
- Identify when two expressions are equivalent
- Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
- Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

- Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
- Understand that positive and negative numbers are used together to describe quantities having opposite directions or values.
- Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
- Understand ordering and absolute value of rational numbers.

Grade 7

- Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}/_{1/4}$ miles per hour, equivalently 2 miles per hour*.
- Recognize and represent proportional relationships between quantities.
- Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.
- Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

- Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
- Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
- Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
- Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

Grade 8

- Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line*.
- Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

- Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.
- Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
- Solve linear equations in one variable.
- Analyze and solve pairs of simultaneous linear equations.
- Explain a proof of the Pythagorean Theorem and its converse.
- Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.