SRPSD Grade 7 Math Rubrics

Part A: Number Strand

N7.1 Demonstrate an understanding of division through the development and application of divisibility strategies for 2, 3, 4, 5, 6, 8, 9, and 10, and through an analysis of division involving zero.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to use divisibility strategies.	Student is able to use (2, 5, 10) divisibility strategies for a given number.	Student is able to use divisibility strategies for a given number including zero.	Student is able to explain their strategy for dividing a quantity into groups.

N7.2a Expand and demonstrate understanding of the addition, subtraction, multiplication, and division of decimals to greater numbers of decimal place.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to do operations with decimals.	Student is able to add and subtract decimals.	Student is able to add, subtract, multiply, divide decimals, if needed, with the use of a multiplication chart.	Student is able to solve situational problems and justify the reasonableness of the solution.

N7.2b Expand and demonstrate understanding of decimals using the order of operations.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance in determining the order of operations.	Student understands the order of operations but is inconsistent in solving.	Student demonstrates an understanding the order of operations with decimals.	Student explains where an error has occurred in a problem involving decimals and order of operations.

N7.3 Demonstrate an understanding of the relationships between positive decimals, positive fractions (including mixed numbers, proper fractions and improper fractions), and whole numbers.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to order a set of numbers.	Student is able to order only a set of fractions or a set of decimals but not when they are combined.	Student is able to order a set of numbers including fractions, decimals (repeating and terminating), and whole numbers.	Student is able to order a set of numbers including fractions, decimals (repeating and terminating), and whole numbers and justify their thinking.

N 7.4 Expand and demonstrate an understanding of percent to include fractional percent between 1% and 100%.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to represent percent.	Student is able to represent a fractional percent between 1% and 100%.	Student is able to solve problems involving percent.	Student can apply percent to a real life situation and justify their decision.

N 7.5 Develop and demonstrate an understanding of adding and subtracting positive fractions and mixed numbers, with like and unlike denominators, concretely, pictorially, and symbolically (limited to positive sums and differences)

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance in adding and subtracting fractions.	Student is able to add and subtract fractions with like denominators. (concretely, pictorially, symbolically)	Student is able to add and subtract fractions including mixed numbers. (concretely, pictorially, symbolically)	Student is able to explain how the sum or difference of fractions can be represented symbolically in different ways.

N 7.6 Demonstrate an understanding of addition and subtraction of integers, concretely, pictorially, and symbolically.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance in adding and subtracting integers.	Student is able to add **or** subtract integers. (concretely, pictorially, symbolically)	Student is able to add **and** subtract integers. (concretely, pictorially, symbolically)	Student is able to apply their understanding of adding and subtracting integers to a situational problem.

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Part B: Pattern & Relations Strand

P7.1 Demonstrate an understanding of the relationships between oral and written patterns, graphs and linear relations.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to create a table of values and graph a linear relation.	Student is able to create a table of values for a linear relation and graph it.	Student is able to create a table of values, graph it and describe the patterns found in the graph.	Student is able to describe a real life situation related to a graph.

P7.2 Demonstrate an understanding of equations and expressions by distinguishing between equations and expressions, evaluating expressions, and verifying solutions to equations.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student is able to explain or justify the difference between an expression and an equation.	Student is able to create a table of values for an expression.	Student is able to determine the expression when given a table of values.	Student is able to give a real life situation for a given expression.

P 7.3 Demonstrate an understanding of one- and two-step linear equations of the form $ax/b + c = d$ (where a, b, c, and d are whole numbers, $c \leq d$ and $b \neq 0$) by modeling the solution of the equations concretely, pictorially, physically, and symbolically and explaining the solution in terms of the preservation of equality.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to solve linear equations.	Student is able to solve one-step linear equations using whole numbers.	Student is able to solve two step linear equations using whole numbers.	Student is able to use a real life situation to solve an equation and verify the solution.

P7.4 Demonstrate an understanding of linear equations of the form (where a and b are integers) by modeling problems as a linear equation and solving the problems concretely, pictorially, and symbolically.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to solve one step whole number equations.	Student is able to solve single step linear equations only with positive integers.	Student is able to solve single step linear equations with integers.	Student is able to use a real life situation to solve a one- step linear equation (using integers) and verify the solution.

Part C: Shape & Space Strand

SS 7.1 Demonstrate understanding of circles including circumference and central angles.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to label the circumference, radius and diameter of a circle.	Student understands the relationship between radius, and diameter.	Student is able to solve the circumference of a circle and understand what central angles are.	Student is able to solve situational problems involving circles and justify their answer.

SS 7.2 Develop and apply formulas for determining the area of triangles, parallelograms, and circles.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance determining the area of triangle, parallelogram, and circle.	Student is able to determine the area of triangle, parallelograms and circles using the formulas.	Student is able to solve real life problems involving triangles, parallelograms, and circles.	Student is able to explain the development of area for triangles, parallelograms, and circles.

SS7.3 Demonstrate understanding of 2-D relationships involving lines and angles.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance identifying perpendicular and parallel lines.	Student is able to draw perpendicular and parallel lines.	Student is able to construct (using compass and straight edge) perpendicular and angle bisectors.	Student is able to create a design and identify constructions present in the design.

SS7.4 Demonstrate understanding of the Cartesian plane and ordered pairs with integral coordinates.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance in order to plot a point in all 4 quadrants.	Student is able to identify the location of a point in all 4 quadrants.	Student is able to plot points on a Cartesian plan in all 4 quadrants.	Student is able to create a shape/design on a Cartesian plane.

SS7.5 Expand and demonstrate an understanding of transformations (translations, rotations, and reflections) of 2-D shapes in all four quadrants of the Cartesian plane.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance in performing a transformation in the positive quadrant of a Cartesian plane.	Student can perform a single transformation of a 2D shape in a 4 quadrant Cartesian plane.	Student can perform a combination of transformations of 2D shapes in a 4 quadrant Cartesian plane.	Student can interpret a combination of successive transformations in a 4 quadrant Cartesian plane.

Part D: Statistics & Probability Strand

SP7.1 Demonstrate understanding of the measures of central tendency and range for sets of data.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance with mean, median and mode.	Student is able to calculate mean, median, mode, but is inconsistent.	Student is able to solve problems involving the measure and central tendency.	Student is able to justify when an outlier will or will not be used in reporting of the measure of central tendency.

SP7.2 Demonstrate understanding of circle graphs.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to answer questions about circle graphs.	Student is able to interpret a circle graph to answer questions.	Student is able to create and label a circle graph to display a set of data.	Student can translate percents displayed in a circle graph into quantities to solve a problem

SP7.3 Demonstrate an understanding of theoretical and experimental probabilities for two independent events where the combined sample space has 36 or fewer elements.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance in giving an example of an independent event.	Student is able to provide an example of two independent events.	Student is able to identify the sample space of all possible outcomes and calculate probability.	Student understands how theoretical and experimental probabilities are related and why they may not be equal.