

RISE PLD Mathematics Grade 7

PLD	Standard	Below Proficient	Approaching Proficient	Proficient	Highly Proficient
Policy		<p>The Level 1 student is below proficient in applying mathematics knowledge/skills as specified in the Utah Core State Standards.</p> <p>The student generally performs significantly below the standard for the grade-level/course, is likely able to partially access grade level content and engages with higher order thinking skills with extensive support.</p>	<p>The Level 2 student is approaching proficient in applying mathematics knowledge/skills as specified in the Utah Core State Standards.</p> <p>The student generally performs slightly below the standard for the grade level/course, is able to access grade-level content and engages in higher order thinking skills with some independence and support.</p>	<p>The Level 3 student is proficient in applying mathematics knowledge/skills as specified in the Utah Core State Standards.</p> <p>The student generally performs at the standard for the grade level/course, is able to access grade-level content, and engages in higher order thinking skills with some independence and minimal support.</p>	<p>The Level 4 student is highly proficient in applying mathematics knowledge/skills as specified in the Utah Core State Standards.</p> <p>The student generally performs significantly above the standard for the grade level/course, is able to access above grade-level content, and engages in higher order thinking skills independently.</p>
Ratios and Proportional Relationships					
		The Level 1 Student:	The Level 2 Student:	The Level 3 Student:	The Level 4 Student:
Range	7.RP.1	Computes unit rates with ratios of two unit fractions having like or different units.	Computes unit rates with ratios of one non-unit fraction and one unit fraction having like or different units.	Computes unit rates with ratios of two non-unit fractions having like or different units.	Computes unit rates with ratios of two mixed numbers having like or different units.
Range	7.RP.2a 7.RP.2b	Decides whether two quantities are in a proportional relationship and identifies the constant of proportionality (unit rate) in a representation that includes (0, 0).	Decides whether two quantities are in a proportional relationship and identifies the constant of proportionality (unit rate) in any simple representation, i.e., tables, equations, diagrams, verbal descriptions, graphs.	Decides whether two quantities are in a proportional relationship and identifies the constant of proportionality (unit rate) in any complex representation, (i.e., tables, equations, diagrams, verbal descriptions, graphs).	Extends the given representation or creates a different representation that would represent the same proportional relationship.
Range	7.RP.2c	Identifies the equation that models a relationship from a given representation with a proportional relationship.	Models a proportional relationship using an equation when given a simple table, graph, or verbal description.	Models a proportional relationship using an equation given a complex table, graph, or verbal description.	Creates a representation with a context that would represent a given proportional equation.
Range	7.RP.2d	Explains what any point (x, y) on the graph of a proportional relationship means in terms of the situation, but not identify the unit rate.	Explains what any point (x, y) on the graph of a proportional relationship means in terms of the situation and can identify the unit rate when given the point (1, r).	Explains what any point (x, y) on the graph of a proportional relationship means in terms of the situation and identify the unit rate.	Identifies a point (x, y) on the same graph as the point (1, r) for a proportional relationship and interprets the meaning of (x, y) in terms of the situation.
Range	7.RP.3	Uses proportional relationships to solve simple ratio and percent problems.	Uses proportional relationships to solve simple ratio and percent problems in context.	Uses proportional relationships to solve multistep ratio and percent problems in context.	Creates equivalent proportional equations that could be used to solve the same ratio/percent problem in context.

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Number System					
		The Level 1 Student:	The Level 2 Student:	The Level 3 Student:	The Level 4 Student:
Range	7.NS.1a 7.NS.1b 7.NS.1c 7.NS.1d	Adds or subtracts rational numbers using a number line or other manipulatives.	Adds or subtracts simple rational numbers.	Adds or subtracts rational numbers and determines the reasonableness of the solution. Recognizes that the sum of a number and its opposite equals zero, understand $p + q$ as the number located a distance $ q $ from p in a positive or negative direction, and understand subtraction as adding the additive inverse.	Justifies the steps taken to add or subtract rational numbers.
Range	7.NS.2a 7.NS.2b 7.NS.2c 7.NS.2d	Multiplies or divides rational numbers using a number line or other manipulatives.	Multiplies or divides simple rational numbers.	Multiplies or divides rational numbers and determines the reasonableness of the solution. Understands that $-(q/p) = (-p)/q = p/(-q)$. Converts a rational number to a decimal using long division and knows that the rational number terminates in 0 or eventually repeats. Knows that division by zero is undefined.	Interprets products and quotients of rational numbers in a real-world context.
Range	7.NS.3	Solves simple real-world and mathematical problems involving the four operations with rational numbers using the number line or other manipulatives.	Solves simple real-world and mathematical problems involving the four operations with rational numbers.	Solves real-world and multistep mathematical problems involving the four operations with rational numbers.	Creates a story problem to model a given number sentence.
Expressions and Equations					
		The Level 1 Student:	The Level 2 Student:	The Level 3 Student:	The Level 4 Student:
Range	7.EE.1	Applies properties of operations as strategies to add, subtract, factor, and expand linear expressions (with whole number coefficients).	Applies properties of operations as strategies to add, subtract, factor, and expand linear expressions (with integer coefficients).	Applies properties of operations as strategies to add, subtract, factor, and expand linear expressions (with simple rational coefficients).	Applies properties of operations as strategies to add, subtract, factor, and expand linear expressions (with complex rational coefficients).
Range	7.EE.2	Recognizes and explains the meaning of an expression in context (with integer coefficients).	Recognizes and explains the meaning of an expression in context (with rational coefficients).	Understands that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.	Creates equivalent expressions given a problem context and explains key terms and factors of the problem for each expression.
Range	7.EE.3 7.EE.4a 7.EE.4b	Solves equations of the form $px + q = r$ and $p(x + q) = r$ with rational coefficients.	Solves real-world or mathematical problems of the form $px + q = r$ and $p(x + q) = r$, with rational coefficients, using equations and inequalities.	Creates a model and solves real-world or mathematical problems of the form $px + q = r$ and $p(x + q) = r$, (with rational coefficients), using equations and inequalities.	Creates a model and solves real-world or mathematical problems using equations and inequalities with rational coefficients and explains what the solution means.

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Geometry and Statistics and Probability					
Geometry					
		The Level 1 Student:	The Level 2 Student:	The Level 3 Student:	The Level 4 Student:
Range	7.G.1	Finds actual lengths given a geometric figure and a scale factor.	Finds actual lengths given two geometric figures with some unknown side measure.	Computes actual lengths and areas from a scale drawing and reproduces a scale drawing using a different scale.	Explains the relationship between scale factors of length and scale factors of areas for geometric figures.
Range	7.G.2	Constructs geometric shapes given conditions on the sides or angles and determines if it makes a particular shape.	Constructs geometric shapes given a combination of angle and side conditions and determines whether it makes a particular shape.	Notifies when conditions determine a unique triangle, more than one triangle, or no triangle.	Justifies the conditions for a unique triangle, more than one triangle or no triangle.
Range	7.G.3	Identifies the two-dimensional figure that results from a vertical or horizontal cut of a right rectangular prism.	Identifies the two-dimensional figure that results from a vertical or horizontal cut of right rectangular pyramids.	Describes the two-dimensional figure that results from a vertical, horizontal, or angled slice of a right rectangular prism.	Draws the two-dimensional figure that results from a vertical, horizontal, or angled slice of a right prism or pyramid.
Range	7.G.4	Recognizes the formulas for area and circumference of a circle.	Calculates area and circumference given radius or diameter. Calculates radius or diameter given the circumference.	Determines the area given the circumference or vice versa. Solves real-world problems involving area and circumference. Gives an informal derivation of the relationship between circumference and area of a circle.	Understands how and why the formulas for area and circumference of a circle work. Explains the relationship between area of a circle and area of a parallelogram.
Range	7.G.5	Identifies supplementary, complementary, vertical and adjacent angles.	Finds the unknown angle given another angle and their relationship.	Finds any of the unknown angles formed by two intersecting lines when measures are given algebraic expressions.	Creates and solves multi-step equations to find unknown angle measures given a figure with intersecting lines.
Range	7.G.6	Finds the area of triangles, quadrilaterals and regular polygons. Finds the volume of cubes and right prisms.	Solves real-world problems involving surface area of two-dimensional figures. Solve real-world volume problems for cubes and right prisms.	Solves real-world problems involving surface area of composite two-dimensional figures. Solves real-world problems involving volume of three-dimensional objects.	Uses relationships between volume and surface area of three-dimensional shapes to solve real-world problems.
Statistics and Probability					
		The Level 1 Student:	The Level 2 Student:	The Level 3 Student:	The Level 4 Student:
Range	7.SP.1 7.SP.2	Identifies and recognizes sample populations given a scenario describing the entire population.	Recognizes that a random sample produces the most valid representation of the entire population.	Makes inferences about a population based on representative samples. Uses multiple samples to gauge variations in estimates or predictions.	Identifies and justifies the most representative sampling method for a situation.
Range	7.SP.3 7.SP.4	Uses basic measures of central tendency to compare two different populations.	Uses measures of central tendency to draw comparisons about two different populations.	Uses measures of central tendency and variability to make comparative inferences about two populations in any context.	Uses measures of variability for numerical data from random samples to draw comparative inferences about two populations.

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Range	7.SP.5	Understands that the probability of a chance event is a number between 0 and 1.	Understands that the probability if a chance event is closer to 1 it is likely to happen and if it is closer to 0 it is not likely to happen.	Identifies the probability of a chance event as impossible (0), unlikely, equally likely or unlikely (0.5), more likely, or certain (1). Represents the probability as a fraction, decimal, or percent.	Compares probabilities of two or more events and justify the likelihood of each event.
Range	7.SP.6	Makes approximations of probability for a chance event.	Uses the results of an experiment to make approximations of probability for an event.	Compares the relative frequency of an event to the theoretical probability of the event.	Recognizes and justifies why the experimental probability approaches the theoretical probability as the relative frequency of an event increases.
Range	7.SP.7a 7.SP.7b	Determines the theoretical probability of a simple event.	Determines the theoretical probability of a simple event and uses observed frequencies to create a uniform probability model.	Determines the theoretical probability of an event and uses observed frequencies to create a probability model for the data from a chance process (where outcomes are uniform or not uniform).	Compares and justifies the experimental and theoretical probability in a given situation.
Range	7.SP.8a 7.SP.8b 7.SP.8c	Determines the sample space for compound events.	Determines the theoretical probability of a compound event.	Designs a simulation to generate frequencies for compound events.	Compares different simulations to see which best predicts the probability.