



General Information

Course *Pre-Algebra* **Grade** *7th or 8th Grade*
Stakeholders School staff members, students, families, and community members

General Unit Information

Unit Name	Numbers and Operations	Measures of Central Tendency	Probabilities	Expressions	Linear Equations and Inequalities
Pacing	16 Days	12 Days	13 Days	15 Days	16 Days
Standards	<p>PA.N.1.1 Develop and apply the properties of integer exponents, including $a^0 = 1$ (with $a \neq 0$), to generate equivalent numerical and algebraic expressions.</p> <p>PA.N.1.2 Express and compare approximations of very large and very small numbers using scientific notation</p> <p>PA.N.1.3 Multiply and divide numbers expressed in scientific notation and express the answer in scientific notation</p> <p>PA.N.1.4 Compare and order real numbers; locate real numbers on a number line. Identify the square roots of perfect squares to 400 or, if it is not a perfect square root, locate it as an irrational number between two consecutive positive integers.</p> <p>PA.N.1.4 Compare and order real numbers; locate real numbers on a number line. Identify the square roots of perfect squares to 400 or, if it is not a perfect square root, locate it as an irrational number between two consecutive positive integers.</p>	<p>PA.D.1.1 Describe the impact that inserting or deleting a data point has on the mean and the median of a data set. Create data displays using technology to examine this impact.</p> <p>PA.D.1.2 Explain how outliers affect measures of center and spread.</p> <p>PA.D.1.3 Collect, display, and interpret data using scatter plots. Use the shape of the scatter plot to find the informal line of best fit, make statements about the average rate of change, and make predictions about values not in the original data set.</p>	<p>PA.D.2.2 Determine how samples are chosen (randomness) to draw and support conclusions about generalizing a sample to a population, including identifying limitations and biases.</p> <p>PA.D.2.1 Calculate experimental probabilities and represent them as percents, fractions, and decimals between 0 and 1. Use experimental probabilities to predict relative frequencies when actual probabilities are unknown.</p> <p>PA.D.2.3 Define, compare, and contrast the probabilities of dependent and independent events.</p>	<p>PA.A.3.2 Justify steps in generating equivalent expressions by combining like terms and using order of operations (to include grouping symbols). Identify the properties used, including the properties of operations (associative, commutative, and distributive).</p> <p>PA.A.3.1 Use substitution to simplify and evaluate algebraic expressions</p>	<p>PA.A.4.1 Solve mathematical problems using linear equations with one variable where there could be one, infinitely many, or no solutions. Represent situations using linear equations and interpret solutions in the original context.</p> <p>PA.A.4.2 Represent, write, solve, and graph problems leading to linear inequalities with one variable in the form $px + q > r$ and $px + q < r$, where p, q, and r are rational numbers</p> <p>PA.A.4.3 Represent real-world situations using equations and inequalities involving one variable.</p>
	Basics of Geometry & the Pythagorean Theorem	Surface Area and Volume	Linear Functions	Data and Statistics	
	14 Days	16 Days	20 Days	10 Days	
	PA.GM.1.1 Justify the Pythagorean theorem using measurements, diagrams, or dynamic software to solve problems in two dimensions involving right triangles.	PA.GM.2.1 Calculate the surface area of a rectangular prism using decomposition or nets. Use appropriate units (e.g., cm^2).	PA.A.1.1 Recognize that a function is a relationship between an independent variable and a dependent variable in which the value of the independent variable determines the value of the dependent variable.	PA.D.1.1 Describe the impact that inserting or deleting a data point has on the mean and the median of a data set. Create data displays using technology to examine this impact.	

PA.GM.1.2 Use the Pythagorean theorem to find the distance between any two points in a coordinate plane.	PA.GM.2.3 Justify why base area (B) and height (h) in the formula $V=Bh$ are multiplied to find the volume of a rectangular prism. Use appropriate units (e.g., cm^3).	PA.A.1.3 Identify a function as linear if it can be expressed in the form $y=mx + b$ or if its graph is a non-vertical straight line	PA.D.1.2 Explain how outliers affect measures of center and spread.	
	PA.GM.2.2 Calculate the surface area of a cylinder, in terms of π (Π) and using approximations for π (Π), using decomposition or nets. Use appropriate units (e.g., cm^2).	PA.A.2.1 Represent linear functions with tables, verbal descriptions, symbols, and graphs; translate from one representation to another	PA.D.1.3 Collect, display, and interpret data using scatter plots. Use the shape of the scatter plot to find the informal line of best fit, make statements about the average rate of change, and make predictions about values not in the original data set. Use appropriate titles, labels, and units.	
	PA.GM.2.4 Develop and use the formulas $V = (\Pi r^2)h$ and $V = Bh$ to determine the volume of right cylinders, in terms of π and using approximations for π (Π). Justify why base area (B) and height (h) are multiplied to find the volume of a right cylinder. Use appropriate units (e.g., cm^3).	PA.A.1.2 Use linear functions to represent and model mathematical situations		
		PA.A.2.2 Identify, describe, and analyze linear relationships between two variables		
		PA.A.2.3 Identify graphical properties of linear functions, including slope and intercepts. Know that the slope equals the rate of change, and that the y-intercept is zero when the function represents a proportional relationship.		
		PA.A.2.4 Predict the effect on the graph of a linear function when the slope or y-intercept changes. Use appropriate tools to examine these effects		