

## Mathematics Curriculum for 6 - 8

Strand	Standard	Benchmark	K	1	2	
Patterns, Relationships and Functions	Patterns	Recognize and describe a pattern and continue it. (6, 7, 8)				
		Represent patterns using tables, charts and graphs. (6, 7, 8)				
		Use patterns to justify inferences and predictions in the solution of a problem. (6, 7, 8)				
		Recognize visual and numerical patterns, symmetric and spatial patterns. (6, 7, 8)				
		Recognize and apply linear expressions and new linear expressions. (6, 7, 8)				
	Variability	Recognize change and the rule that describes that pattern of change. (6, 7, 8)				
		Recognize what will happen to one quantity when another variable is changed and be able to represent it on a graph or in tables. (6, 7, 8)				
		Use variables and relationships to solve mathematical problems. (6, 7, 8)				
		Represent variability or change by ordered pairs, tables, graphs and equations. (6, 7, 8)				
		Differentiate between linear and non-linear, continuous and non-continuous. (6, 7, 8)				
Geometry and Measurement	Shape and Shape Relationships	Distinguish among shapes by generalizing the characteristics and develop classifications of familiar shapes. (6, 7)				
		Construct shapes by using appropriate tools, including technology, and be able to combine, dissect and transform them. (6, 7)				
		Use shape, shape properties and shape relationships to describe the physical world and to solve problems. (6, 7)				
		Classify familiar shapes. (7)				
		Understand and be able to use properties of similar, congruent, parallel and perpendicular shapes and generalize about them. (8)				
	Position	Locate points on a grid. (6)				
		Locate and describe objects in terms of their orientation; differentiate between fixed (N, S, E, W) and relative (left, right) orientations. (6, 7, 8)				
		Locate points on a Cartesian coordinate grid. (7, 8)				
		Locate and describe objects in terms of their position including compass directions, latitude and longitude. (Social Studies, (7, 8)				
		Locate the position of points by objects of two or more conditions. (7, 8)				
		Describe and construct translations, reflections, rotations, expansions and contractions and recognize congruence in figures. (7, 8)				
		Use concepts of position, direction and orientation to describe the physical world and solve problems. (8)				
		Recognize bilateral symmetry and rotational symmetry. (8)				
		Measurement	Be able to measure objects in standard units, metric and common systems. (6, 7, 8)			
			Measure angles and degrees. (6, 7, 8)			
	Select appropriate measurement units, estimate the measure and check for accuracy. (6, 7, 8)					
	Be able to apply measurement to the real world to solve problems. (6, 7, 8)					
	Be able to compare and contrast perimeter and area. (7, 8)					
	Data Analysis and Statistics	Collection, Organization and Presentation of Data	Collect and explore data using various methods and be able to organize the data using tables, charts, graphs, (6, 7, 8), spreadsheets (7, 8) and box and whisker plots (7, 8) and explain why one representation is performed over another (7, 8). Tell how a particular representation could bias a presentation (8).			
			Be able to use the data to answer particular questions and solve problems. (6, 7, 8)			
Design and implement strategies to obtain, organize, and present data needed to solve a particular problem. (6, 7, 8)						
Description and Interpretation		Describe data using mean, median, mode and range. (6, 7)				
		Read data and be able to draw and explain conclusions. (6, 7, 8)				
		Critically question sources of data and the technique used to collect it . (Science)				
Inference and Prediction		Formulate questions and problems and gather appropriate data. (Science)				
		Make and test hypotheses (Science). Design and experiment using sampling, simulations and controlled investigations. (6, 7, 8).				
		Draw conclusions and make predictions based on data. (6, 7, 8)				

		Use investigations, models, and/or simulations to make predictions, to answer questions and/or solve problems. (6, 7, 8)					
Number Sense and Numeration	Concepts and Properties of Numbers	Be able to use integers and rational numbers in both fraction and decimal form to solve mathematical and applied problems. (6, 7, 8)					
		Develop an understanding of scientific notation and the properties of integer and rational number systems. (6 or 7, 8)					
		Understand the properties of different domains and special numbers including 0, 1 and power of 1, and addition and multiplication inverses. (7, 8)					
	Representation and Uses of Numbers	Recognize equivalent representations of numbers. (6, 7, 8)					
		Represent rational numbers and integers on a number line. (6, 7, 8)					
		Give geometric representations of fractions, prime and composite numbers and other numbers. (6, 7, 8)					
		Distinguish between the different domains and choose the appropriate ones. (6, 7, 8)					
		Refine and practice strategies for estimation. (6, 7, 8)					
	Number Relationships	Be able to explain the meaning of powers and roots (6) and use calculators to compare them. (7, 8)					
		Distinguish between prime and composite numbers, factors and multiple and apply divisibility test to numbers. (6, 8)					
		Express numerical comparisons as ratios, rates and with use of relations of equality and inequality. (7, 8) Be able to order integers and rational numbers. (6, 7, 8)					
		Use number relationships to solve problems. (7, 8)					
Numerical and Algebraic Operations and Analytical Thinking	Operations and their Properties	Be able to add, subtract, multiply and divide fractions, decimals and whole numbers. (6, 7, 8)					
		Efficiently and accurately apply appropriate operations to solve story problems. (6, 7, 8)					
		Compute, applying correct order of operations, with integers, rational numbers and simple algebraic expressions. (6, 7, 8)					
		Describe and apply the properties of operations – commutative, associative, distributive, etc. (7, 8)					
	Algebraic and Analytical Thinking	Read and write algebraic expressions. (6, 7, 8)					
		Use the power of technology to explore problems reflecting mathematics in society. (6, 7, 8)					
		Develop strategies to solve these equations and be able to do so in a series of steps using the most adequate method for the problem. (6, 7, 8)					
		Identify similar figures and find missing lengths. (6, 8)					
		Represent algebraic concepts (quadratics) with geometric models such as areas. (7, 8)					
		Simplify expressions and translate between verbal and algebraic expressions. (7, 8)					
		Solve linear equalities and inequalities using algebraic and geometric method. (7, 8)					
		Determine whether a quadratic polynomial can be factored over integers. (8)					
		Probability and Discrete Mathematics	Probability	Find the range, mean, median and mode of a set of data. (6, 7, 8)			
				Conduct probability experiments to solve problems (6) and illustrate the difference between dependent and independent events. (7, 8)			
Describe events as likely or unlikely and give degree of likelihood. (7)							
Explain the difference between probability and relative frequency. (7, 8)							
Understand relative frequency and be able to conduct experiments with a finite number of equally likely outcomes. (7, 8)							
Describe probability as a measure from zero to one and express probabilities in mathematic terms. (7, 8)							
Be able to explain the difference between dependent and independent events. (7, 8)							
Discrete Mathematics	Use sets and set relationships to explore and solve simple problems. (6, 7, 8)						
	Use manipulative and/or drawings to assist in problem solving and be able to compare solutions with other students' solutions. (6, 7, 8)						
	Use discrete math concepts to model situations and solve problems involving networks. Decide whether or not there is a solution, how many solutions and decide on the best solution. (6, 7, 8).						
	Explore reoccurring relations and intersections. (6, 7, 8)						
		Use manipulatives, diagrams and the fundamental theorem of counting to count permutations and combinations. (8)					