

## Mathematics Curriculum for 3 - 5

Strand	Standard	Benchmark	K	1	2
Patterns, Relationships and Functions	Patterns	Recognize, describe and extend numerical and geometric patterns. (3,4,5)			
		Communicate and represent patterns and relationships in diverse ways. (3,4,5)			
		Describe the real world using patterns. (3,4)			
		Recognize and classify numeric and geometric patterns. (3,4,5)			
		Solve problems and explore new content using pattern recognition and analysis. (3,4,5)			
	Variability	Recognize change in variability when it occurs in a variety of settings. (3,4,5)			
		Recognize patterns of change and natural variation to better understand variability. (3,4,5)			
		Explore changes and realize that changes are frequently interdependent. (4,5)			
		Represent variability in a variety of symbolic forms. (3,4)			
		Model patterns of variability arising from physical and mathematical contexts using functions and relationships. (3,4)			
		Understand that variability and change are a basis for making sense of the world and of mathematical ideas. (3,4,5)			
	Geometry and Measurement	Shape and Shape Relationships	Recognize and name familiar shapes in one, two and three dimensions such as lines, rectangles and spheres and informally discuss the shapes of a graph. (3,4,5)		
Describe the attributes of familiar shapes. (4,5)					
Compare, sort and classify familiar shapes. (3)					
Draw and build familiar shapes. (3,4,5)					
Explore ways to combine, dissect and transform shapes. (4,5)					
Recognize parallel and perpendicular line segments and figures that have similarity and/or congruence. (4,5)					
Use shapes, shape properties and shape relationships to describe the physical world and to solve problems. (3,4,5)					
Position		Locate and describe objects in terms of their position. (3,4,5)			
		Locate and describe objects in terms of their orientation, direction and relative position. Recognize symmetrical objects and identify lines of symmetry. (3,4,5)			
		Explore what happens to the size, shape and position of an object after sliding, flipping, turning, enlarging or reducing. (4,5)			
		Describe the physical world and solve problems using concepts of position, direction and orientation. (3,4,5)			
Measurement		Compare attributes of objects, develop standard units of measurement and select and use standard tools of measurement. (3,4,5)			
		Identify the attribute to the measured and select the appropriate unit of measurement. (3)			
		Develop strategies for eliminating measure and compare the estimates to the results of measurement. Decide if an estimate is logical. (3,4,5)			
		Interpret the meaning and significance of various measurements. (3)			
		Explore scale drawings, models and maps and relate them to measurements of real objects. (4,5)			
		Apply measurement to describe the real world and to solve problems. (3,4,5)			
Data Analysis and Statistics		Collection, Organization and Presentation of Data	Collect and explore data through counting, measuring and conducting surveys and experiments. (3,4,5)		
	Organize data using concrete objects, pictures, tallies, tables, charts, diagrams and graphs. (4,5)				
	Present data using a variety of appropriate representations and explain the meaning of the data. (3,4,5)				
	Identify what data are needed to answer a particular question or solve a given problem and design and implement strategies to obtain, organize and present those data. (3,4,5)				
	Description and Interpretation	Read and explain data collected. Read data from other sources. (3,4)			
		Describe the shape of the data using informal language. (3,4)			
		Draw conclusions; justify conclusions to explain trends based on data. (3,4,5)			
		Raise and answer questions about the source, collection, organization and presentation of data. Draw conclusions. Explore biases in data. (4,5)			
		Formulate questions and problems and gather and interpret data to answer those questions. (4,5)			

	Inference and Prediction	Make and test hypotheses. (3,4)			
		Conduct surveys, samplings, and experiments to solve problems and answer questions of interest. (3,4)			
		Formulate and communicate arguments and conclusions based on data and evaluate conclusions. (3,4)			
		Make and explain predictions based on data. (3,4)			
		Make predictions to answer questions and solve problems. (3,4)			
Number Sense and Numeration	Concepts and Properties of Numbers	Develop an understanding of whole numbers and read, write and count using whole numbers. Investigate basic concepts of fractions and decimals. (3,4)			
		Investigate and develop an understanding of the basic 10, place value system. (3,4)			
		Develop an understanding of the properties of numbers ( Ex. order) and of the properties of the special numbers 0 and 1. (3,4)			
		Apply understanding of number systems to model and solve problems. (4,5)			
	Representation and Uses of Numbers	Represent whole numbers, fractions and decimals using concrete, pictorial and symbolic representations. (3,4,5)			
		Explore and recognize different representations for the same number and explain why they are the same. (3)			
		Investigate ways numbers are used for varied purposes. (3,4)			
		Develop strategies for estimating quantity and evaluate the reasonableness of the estimates. (3,4)			
		Select appropriate numbers and representations in order to solve problems. (4,5)			
	Number Relationships	Compare and order numbers using “equal”, “les” or “greater than”. (3,4)			
		Use part-whole relationships to explore numbers, develop number concepts and understand computation. (3,4)			
		Classify numbers as even or odd and explore concepts of factors and multiples. (3,4)			
		Apply understanding of number relationships in solving problems. Use properties and relationships of numbers. (3,4)			
Numerical and Algebraic Operations and Analytical Thinking	Operations and their Properties	Use manipulatives to model operations with numbers. Develop methods of recording operations and relate models and recordings to standard symbolic expressions and algorithms. (3,4)			
		Develop and apply appropriate method of computation from mental computation, estimation, paper and pencil or calculators. Explain reason for chosen method and reason for using certain operations in certain situations. (3,4)			
		Explore properties of operations (Ex. commutative and distributive properties) and give examples of how they use those properties. (3)			
		Apply operations efficiently and accurately in solving problems. (3,4)			
	Algebraic and Analytical Thinking	Write and solve open sentences (Ex. $\_\_\_ + \_\_\_ = 5$ ) and write stories to fit the open sentences. (3,4)			
		Explore algebraic concepts with manipulatives such as balance scales, tables of input and output and pictorial representations of problems. (3,4)			
		Find replacement for the variables in open sentences. (3,4)			
		Use analytic thinking to describe situations and solve problems. (3,4)			
Probability and Discrete Mathematics	Probability	Develop understanding of the concepts of chance and uncertainty. (3,4,5)			
		Compare events and describe them as “more likely” and “less likely” and use the language of fractions to describe simple probabilities. (3,4,5)			
		Understand that some outcomes are affected by prior events while others are independent. (4,5)			
		Examine outcomes and search for explanations and realize the difference between probabilities determined from observations and probabilities derived mathematically. (4,5)			
		Create experiments that model the behavior of variables on a smaller scale to solve a larger problem. (4,5)			
	Discrete Mathematics	Use manipulatives and diagrams to explore problems involving counting and arranging objects to practice simple arrangements. Cultivate accuracy and develop an understanding of permutations and combinations. (3,4)			
		Explore sets and set relationships by sorting and classifying objects). (3,4)			
		Model and/or trace paths using figures consisting of vertices connected by edges. (3,4,5)			
		Understand patterns that repeat, “now-next” patterns. (3,4,5)			
		Explore, develop and invent algorithms to develop procedures for solving problems. (4,5)			
		Analyze context of a problem to determine the best means of solving the problem. (4,5)			

