STATE GOAL 6: Demonstrate and apply a knowledge and sense of numbers, including numeration and operations (addition, subtraction, multiplication, division), patterns, ratios and proportions.

Why This Goal Is Important: Numbers and operations on numbers play fundamental roles in helping us make sense of the world around us. Operations such as addition, subtraction, multiplication and division, as well as the ability to find powers and roots, extend the notion of numbers to create tools to model situations and solve problems in our everyday lives. Discussing and solving problems related to budgets, comparing prices on merchandise, understanding the nature of interest charges, measuring fuel consumption and calculating the trajectory for space travel would all be impossible without a sense of numbers and numerical operations. All people must develop this sense of numbers and operations and be able to use it to solve problems using mental computation, paper-and-pencil algorithms, calculators and computers.

A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
6.A.1a Identify whole numbers and compare them using the symbols <, >, or = and the words "less than", "greater than", or "equal to", applying counting, grouping and place value concepts.	**6.A.2** Compare and order whole numbers, fractions and decimals using concrete materials, drawings and mathematical symbols.	**6.A.3** Represent fractions, decimals, percentages, exponents and scientific notation in equivalent forms.	**6.A.4** Identify and apply the associative, commutative, distributive and identity properties of real numbers, including special numbers such as pi and square roots.	**6.A.5** Perform addition, subtraction and multiplication of complex numbers and graph the results in the complex plane.
6.A.1b Identify and model fractions using concrete materials and pictorial representations.				

B. Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division) and their properties, algorithms and relationships.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
6.B.1 Solve one- and two-step problems with whole numbers using addition, subtraction, multiplication and division.	**6.B.2** Solve one- and two-step problems involving whole numbers, fractions and decimals using addition, subtraction, multiplication and division.	**6.B.3a** Solve practical computation problems involving whole numbers, integers and rational numbers.	**6.B.4** Select and use appropriate arithmetic operations in practical situations including calculating wages after taxes, developing a budget and balancing a checkbook.	**6.B.5** Identify, represent and apply numbers expressed in exponential, logarithmic and scientific notation using contemporary technology.
		6.B.3b Apply primes, factors, divisors, multiples, common factors and common multiples in solving problems.		
		6.B.3c Identify and apply properties of real numbers including pi, squares, and square roots.		

C. Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
6.C.1a Select and perform computational procedures to solve problems with whole numbers.	**6.C.2a** Select and perform computational procedures to solve problems with whole numbers, fractions and decimals.	**6.C.3a** Select computational procedures and solve problems with whole numbers, fractions, decimals, percents and proportions.	**6.C.4** Determine whether exact values or approximations are appropriate (e.g., bid a job, determine gas mileage for a trip).	**6.C.5** Determine the level of accuracy needed for computations involving measurement and irrational numbers.
6.C.1b Show evidence that whole number computational results are correct and/or that estimates are reasonable.	**6.C.2b** Show evidence that computational results using whole numbers, fractions and decimals are correct and/or that estimates are reasonable.	**6.C.3b** Show evidence that computational results using whole numbers, fractions, decimals, percents and proportions are correct and/or that estimates are reasonable.		

D. Solve problems using comparison of quantities, ratios, proportions and percents.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
6.D.1 Compare the numbers of objects in groups.	**6.D.2** Describe the relationship between two sets of data using ratios and appropriate notations (e.g., a/b, a to b, a:b).	**6.D.3** Apply ratios and proportions to solve practical problems.	**6.D.4** Solve problems involving recipes or mixtures, financial calculations and geometric similarity using ratios, proportions and percents.	**6.D.5** Solve problems involving loans, mortgages and other practical applications involving geometric patterns of growth.

STATE GOAL 7: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.

Why This Goal Is Important: Measurement provides a way to answer questions about "how many," "how much" and "how far." It is an indispensable component of business, manufacturing, art, medicine and many other aspects of daily life. We describe the sizes, capacities and values of many things, from the large distances involved in space travel, to the very small quantities in computer design and microbiology, to the varying values of currencies in international monetary exchange. All people must be able to choose an appropriate level of accuracy for a measurement; to select what measuring instruments to use and to correctly determine the measures of objects, space and time. These activities require people to be able to use standard instruments including rulers, volume and capacity measures, timers and emerging measurement technologies found in the home and workplace.

A. Measure and compare quantities using appropriate units, instruments and methods.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
7.A.1a Measure length, volume and weight/mass using rulers, scales and other appropriate measuring instruments in the customary and metric systems.	**7.A.2a** Calculate, compare and convert length, perimeter, area, weight/mass and volume within the customary and metric systems.	**7.A.3a** Measure length, capacity, weight/mass and angles using sophisticated instruments (e.g., compass, protractor, trundle wheel).	**7.A.4a** Apply units and scales to describe and compare numerical data and physical objects.	**7.A.5** Apply nonlinear scales (e.g., Richter, decibel, pH) to solve practical problems.
7.A.1b Measure units of time using appropriate instruments (e.g., calendars, clocks, watches—both analog and digital).	**7.A.2b** Solve addition, subtraction, multiplication and division problems using currency.	**7.A.3b** Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations.	**7.A.4b** Apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values.	
7.A.1c Identify and describe the relative values and relationships among coins and solve addition and subtraction problems using currency.				
7.A.1d Read temperatures to the nearest degree from Celsius and Fahrenheit thermometers.				

B. Estimate measurements and determine acceptable levels of accuracy.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
7.B.1a Given a problem, describe possible methods for estimating a given measure.	**7.B.2a** Determine and communicate possible methods for estimating a given measure, selecting proper units in both customary and metric systems.	**7.B.3** Select and apply instruments including rulers and protractors and units of measure to the degree of accuracy required.	**7.B.4** Estimate and measure the magnitude and directions of physical quantities (e.g., velocity, force, slope) using rulers, protractors and other scientific instruments including timers, calculators and computers.	**7.B.5** Estimate perimeter, area, volume, and capacity of irregular shapes, regions and solids and explain the reasoning supporting the estimate.
7.B.1b Compare estimated measures to actual measures taken with appropriate measuring instruments.	**7.B.2b** Estimate conversions between measures within the customary and metric systems.			

C. Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
7.C.1 Determine perimeter and area using concrete materials (e.g., geoboards, square tiles, grids, measurement instruments).	**7.C.2a** Describe relationships in a simple scale drawing.	**7.C.3a** Construct a simple scale drawing for a given situation.	**7.C.4a** Make indirect measurements, including heights and distances, using proportions (e.g., finding the height of a tower by its shadow).	**7.C.5a** Use dimensional analysis to determine units and check answers in applied measurement problems.
	7.C.2b Construct or draw figures with given perimeters and areas.	**7.C.3b** Use concrete and graphic models and appropriate formulas to find perimeters, areas, surface areas and volumes of two- and three-dimensional regions.	**7.C.4b** Interpret scale drawings and models using maps and blueprints.	**7.C.5b** Determine how changes in one measure may affect other measures (e.g., what happens to the volume and surface area of a cube when the side of the cube is halved).
			7.C.4c Convert within and between measurement systems and monetary systems using technology where appropriate.	

STATE GOAL 7: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.

Why This Goal Is Important: Measurement provides a way to answer questions about "how many," "how much" and "how far." It is an indispensable component of business, manufacturing, art, medicine and many other aspects of daily life. We describe the sizes, capacities and values of many things, from the large distances involved in space travel, to the very small quantities in computer design and microbiology, to the varying values of currencies in international monetary exchange. All people must be able to choose an appropriate level of accuracy for a measurement; to select what measuring instruments to use and to correctly determine the measures of objects, space and time. These activities require people to be able to use standard instruments including rulers, volume and capacity measures, timers and emerging measurement technologies found in the home and workplace.

A. Measure and compare quantities using appropriate units, instruments and methods.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
7.A.1a Measure length, volume and weight/mass using rulers, scales and other appropriate measuring instruments in the customary and metric systems.	**7.A.2a** Calculate, compare and convert length, perimeter, area, weight/mass and volume within the customary and metric systems.	**7.A.3a** Measure length, capacity, weight/mass and angles using sophisticated instruments (e.g., compass, protractor, trundle wheel).	**7.A.4a** Apply units and scales to describe and compare numerical data and physical objects.	**7.A.5** Apply nonlinear scales (e.g., Richter, decibel, pH) to solve practical problems.
7.A.1b Measure units of time using appropriate instruments (e.g., calendars, clocks, watches—both analog and digital).	**7.A.2b** Solve addition, subtraction, multiplication and division problems using currency.	**7.A.3b** Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations.	**7.A.4b** Apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values.	
7.A.1c Identify and describe the relative values and relationships among coins and solve addition and subtraction problems using currency.				
7.A.1d Read temperatures to the nearest degree from Celsius and Fahrenheit thermometers.				

B. Estimate measurements and determine acceptable levels of accuracy.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
7.B.1a Given a problem, describe possible methods for estimating a given measure.	**7.B.2a** Determine and communicate possible methods for estimating a given measure, selecting proper units in both customary and metric systems.	**7.B.3** Select and apply instruments including rulers and protractors and units of measure to the degree of accuracy required.	**7.B.4** Estimate and measure the magnitude and directions of physical quantities (e.g., velocity, force, slope) using rulers, protractors and other scientific instruments including timers, calculators and computers.	**7.B.5** Estimate perimeter, area, volume, and capacity of irregular shapes, regions and solids and explain the reasoning supporting the estimate.
7.B.1b Compare estimated measures to actual measures taken with appropriate measuring instruments.	**7.B.2b** Estimate conversions between measures within the customary and metric systems.			

C. Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
7.C.1 Determine perimeter and area using concrete materials (e.g., geoboards, square tiles, grids, measurement instruments).	**7.C.2a** Describe relationships in a simple scale drawing.	**7.C.3a** Construct a simple scale drawing for a given situation.	**7.C.4a** Make indirect measurements, including heights and distances, using proportions (e.g., finding the height of a tower by its shadow).	**7.C.5a** Use dimensional analysis to determine units and check answers in applied measurement problems.
	7.C.2b Construct or draw figures with given perimeters and areas.	**7.C.3b** Use concrete and graphic models and appropriate formulas to find perimeters, areas, surface areas and volumes of two- and three-dimensional regions.	**7.C.4b** Interpret scale drawings and models using maps and blueprints.	**7.C.5b** Determine how changes in one measure may affect other measures (e.g., what happens to the volume and surface area of a cube when the side of the cube is halved).
			7.C.4c Convert within and between measurement systems and monetary systems using technology where appropriate.	

STATE GOAL 8: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

Why This Goal Is Important: Algebra unites patterns and quantities in patterns with the means of describing change through the use of variables and functions. Its concepts and analytical methods allow people to consider general solutions to problems with common characteristics and develop related formulas. Algebra provides verbal, symbolic and graphical formats for discussing and representing settings as diverse as the pricing patterns of merchandise in a store, the behavior of a car as it accelerates or slows down, the changes in two chemicals as they react with one another, or the type of variation existing in a comparison of two factors in the economy. All people must be able to use algebraic methods to construct and examine tables of values; to interpret the relationships expressed by patterns in these tables; to relate change and variation in graphs and formulas; to reason about changes in quantities and the relationships involved in changes; and to find solutions to everyday problems using algebra's symbolic manipulation and formulas.

A. Describe numerical relationships using variables and patterns.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
8.A.1a Identify, describe and extend simple geometric and numeric patterns.	**8.A.2a** Identify, describe, extend and create geometric and numeric patterns.	**8.A.3a** Apply the basic properties of commutative, associative, distributive, transitive, inverse, identity, zero, equality and order of operations to solve problems.	**8.A.4a** Use algebraic methods to convert repeating decimals to fractions.	**8.A.5** Solve mathematical problems involving recursive patterns and use models that employ such relationships.
8.A.1b Solve simple number sentences (e.g., $2 + \square = 5$).	**8.A.2b** Construct and solve number sentences using a variable to represent an unknown quantity.	**8.A.3b** Solve problems using linear expressions, equations and inequalities.	**8.A.4b** Represent mathematical patterns and describe their properties using variables and mathematical symbols.	

B. Interpret and describe numerical relationships using tables, graphs and symbols.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
8.B.1 Solve problems involving pattern identification and completion of patterns.	**8.B.2** Analyze a geometric pattern and express the results numerically.	**8.B.3** Use graphing technology and algebraic methods to analyze and predict linear relationships and make generalizations from linear patterns.	**8.B.4a** Represent algebraic concepts with physical materials, words, diagrams, tables, graphs, equations and inequalities and use appropriate technology.	**8.B.5** Use functions including exponential, polynomial, rational, parametric, logarithmic, and trigonometric to describe numerical relationships.
			8.B.4b Use the basic functions of absolute value, square root, linear, quadratic and step to describe numerical relationships.	

C. Solve problems using systems of numbers and their properties.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
8.C.1 Describe the basic arithmetic operations (addition, subtraction, multiplication, division) orally, in writing and using concrete materials and drawings.	**8.C.2** Explain operations and number properties including commutative, associative, distributive, transitive, zero, equality and order of operations.	**8.C.3** Apply the properties of numbers and operations including inverses in algebraic settings derived from economics, business and the sciences.	**8.C.4a** Analyze and report the effects of changing coefficients, exponents and other parameters on functions and their graphs.	**8.C.5** Use polynomial, exponential, logarithmic and trigonometric functions to model situations.
			8.C.4b Apply algebraic properties and procedures with matrices, vectors, functions and sequences using data found in business, industry and consumer situations.	

D. Use algebraic concepts and procedures to represent and solve problems.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
8.D.1 Find the unknown numbers in whole-number addition, subtraction, multiplication and division situations.	**8.D.2** Solve linear equations involving whole numbers.	**8.D.3a** Solve problems using numeric, graphic or symbolic representations of variables, expressions, equations and inequalities.	**8.D.4** Formulate and solve linear and quadratic equations and linear inequalities algebraically and investigate nonlinear inequalities using graphs, tables, calculators and computers.	**8.D.5** Formulate and solve nonlinear equations and systems including problems involving inverse variation and exponential and logarithmic growth and decay.
		8.D.3b Propose and solve problems using proportions, formulas and linear functions.		
		8.D.3c Apply properties of powers, perfect squares and square roots.		

STATE GOAL 9: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.

Why This Goal Is Important: Geometry provides important methods for reasoning and solving problems with points, lines, planes and space. The word "geometry" comes from Greek words meaning "measurement of the Earth." While we use modern technology and employ a wider variety of mathematical tools today, we still study geometry to understand the shapes and dimensions of our world. The applications of geometry are widespread in construction, engineering, architecture, mapmaking and art. Historically, geometry is a way to develop skill in forming convincing arguments and proofs. This goal of developing a means of argument and validation remains an important part of our reasons for studying geometry today.

A. Demonstrate and apply geometric concepts involving points, lines, planes and space.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
9.A.1a Identify related two- and three-dimensional shapes including circle-sphere, square-cube, triangle-pyramid, rectangle-rectangular prism and their basic properties.	**9.A.2a** Build physical models of two- and three-dimensional shapes.	**9.A.3a** Draw or construct two- and three- dimensional geometric figures including prisms, pyramids, cylinders and cones.	**9.A.4a** Construct a model of a three-dimensional figure from a two-dimensional pattern.	**9.A.5** Use geometric figures and their properties to solve problems in the arts, the physical and life sciences and the building trades, with and without the use of technology.
9.A.1b Draw two-dimensional shapes.	**9.A.2b** Identify and describe how geometric figures are used in practical settings (e.g., construction, art, advertising).	**9.A.3b** Draw transformation images of figures, with and without the use of technology.	**9.A.4b** Make perspective drawings, tessellations and scale drawings, with and without the use of technology.	
	9.A.2c Describe and draw representations of geometric relationships, patterns, symmetries, and designs in two- and three-dimensions with and without technology.	**9.A.3c** Use concepts of symmetry, congruency, similarity, scale, perspective, and angles to describe and analyze two- and three-dimensional shapes found in practical applications (e.g., geodesic domes, A-frame houses, basketball courts, inclined planes, art forms, blueprints).		

B. Identify, describe, classify and compare relationships using points, lines, planes and solids.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
9.B.1a Identify and describe characteristics, similarities and differences of geometric shapes.	**9.B.2** Compare geometric figures and determine their properties including parallel, perpendicular, similar, congruent and line symmetry.	**9.B.3** Identify, describe, classify and compare two- and three- dimensional geometric figures and models according to their properties.	**9.B.4** Recognize and apply relationships within and among geometric figures.	**9.B.5** Construct and use two- and three-dimensional models of objects that have practical applications (e.g., blueprints, topo-graphical maps, scale models).
9.B.1b Sort, classify and compare familiar shapes.				
9.B.1c Identify lines of symmetry in simple figures and construct symmetrical figures using various concrete materials.				

C. Construct convincing arguments and proofs to solve problems.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
9.C.1 Draw logical conclusions and com-municate reasoning about simple geometric figures and patterns using concrete materials, diagrams and contemporary technology.	**9.C.2** Formulate logical arguments about geometric figures and patterns and communicate reasoning.	**9.C.3a** Construct, develop and communicate logical arguments (informal proofs) about geometric figures and patterns.	**9.C.4a** Construct and test logical arguments for geometric situations using technology where appropriate.	**9.C.5a** Perform and describe an original investigation of a geometric problem and verify the analysis and conclusions to an audience.
		9.C.3b Develop and solve problems using geometric relationships and models, with and without the use of technology.	**9.C.4b** Construct and communicate convinc-ing arguments for geometric situations.	**9.C.5b** Apply physical models, graphs, coordinate systems, networks and vectors to develop solutions in applied contexts (e.g., bus routing, areas of irregular shapes, describing forces and other physical quantities).
			9.C.4c Develop and communicate mathematical proofs (e.g., two-column, paragraph, indirect) and counter examples for geometric statements.	

D. Use trigonometric ratios and circular functions to solve problems.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
[BLANK]	[BLANK]	**9.D.3** Compute distances, lengths and measures of angles using proportions, the Pythagorean theorem and its converse.	**9.D.4** Analyze and solve problems involving triangles (e.g., distances which cannot be measured directly) using trigonometric ratios.	**9.D.5** Analyze and solve problems involving periodic patterns (e.g., sound waves, tide variations) using circular functions and communicate results orally and in writing.

STATE GOAL 10: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.

Why This Goal Is Important: The ability to understand and interpret data (e.g., opinion polls, stock prices, tax rates, crime statistics, scientific studies, weather reports) grows more important each day. Students must be able to organize data, make sense of variables and patterns, and judge the logical reasonableness of any claims and interpretations made. Even very young students can count objects and communicate their findings with charts and graphs. Students of all ages can collect, display and interpret data to answer specific questions. They also must construct and analyze arguments that involve data and its interpretation. All students need to understand and apply the role probability plays in data collection and decision making. Data analysis and use are important abilities necessary for all careers.

A. Organize, describe and make predictions from existing data.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
10.A.1a Organize and display data using pictures, tallies, tables, charts or bar graphs.	**10.A.2a** Organize and display data using pictures, tallies, tables, charts, bar graphs, line graphs, line plots and stem-and-leaf graphs.	**10.A.3a** Construct, read and interpret tables, graphs (including circle graphs) and charts to organize and represent data.	**10.A.4a** Represent and organize data by creating lists, charts, tables, frequency distributions, graphs, scatterplots and box-plots.	**10.A.5** Construct a statistics-based presentation, individually and as members of a team, to communicate and justify the results of a project.
10.A.1b Answer questions and make predictions based on given data.	**10.A.2b** Using a data set, determine mean, median, mode and range, with and without the use of technology.	**10.A.3b** Compare the mean, median, mode and range, with and without the use of technology.	**10.A.4b** Analyze data using mean, median, mode, range, variance and standard deviation of a data set, with and without the use of technology.	
	10.A.2c Make predictions and decisions based on data and communicate their reasoning.	**10.A.3c** Test the reasonableness of an argument based on data and communicate their findings.	**10.A.4c** Predict from data using interpolation, extrapolation and trend lines, with and without the use of technology.	

B. Formulate questions, design data collection methods, gather and analyze data and communicate findings.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
10.B.1a Formulate questions of interest and design surveys or experiments to gather data.	**10.B.2a** Formulate questions of interest and select methods to systematically collect data.	**10.B.3** Formulate questions (e.g., relationships between car age and mileage, average incomes and years of schooling), devise and conduct experiments or simulations, gather data, draw conclusions and communicate results to an audience using traditional methods and contemporary technologies.	**10.B.4** Design and execute surveys or experiments, gather data to answer relevant questions, and communicate results and conclusions to an audience using traditional methods and contemporary technology.	**10.B.5** Design a statistical experiment to answer a question about a realistic situation, conduct the experiment, use statistics to interpret the data, and communicate the results, individually and as members of a team.
10.B.1b Collect, organize and describe data using pictures, tallies, tables, charts or bar graphs.	**10.B.2b** Collect, organize and display data using tables, charts, bar graphs, line graphs, circle graphs, line plots and stem-and-leaf graphs.			
10.B.1c Analyze data, draw conclusions and communicate the results.	**10.B.2c** Analyze the data using mean, median, mode and range, as appropriate, with or without the use of technology.			
	10.B.2d Interpret results or make relevant decisions based on the data gathered.			

C. Determine, describe and apply the probabilities of events.

EARLY ELEMENTARY	LATE ELEMENTARY	MIDDLE/JUNIOR HIGH SCHOOL	EARLY HIGH SCHOOL	LATE HIGH SCHOOL
10.C.1a Describe the concept of probability in relationship to likelihood and chance.	**10.C.2a** Calculate the probability of a simple event.	**10.C.3a** Determine the probability and odds of events using fundamental counting principles.	**10.C.4a** Solve problems of chance using the principles of probability including conditional settings.	**10.C.5a** Compute conditional probabilities and the probabilities of independent events.
10.C.1b Systematically list all possible outcomes of a simple one-stage experiment (e.g., the flip of one coin, the toss of one die, the spin of a spinner).	**10.C.2b** Compare the likelihood of events in terms of certain, more likely, less likely or impossible.	**10.C.3b** Analyze problem situations (e.g., board games, grading scales) and make predictions about results.	**10.C.4b** Design and conduct simulations (e.g., waiting times at restaurant, probabilities of births, likelihood of game prizes), with and without the use of technology.	**10.C.5b** Compute probabilities in counting situations involving permutations and combinations.

	10.C.2c Determine the probability of an event involving "and", "or" or "not".		10.C.4c Propose and interpret discrete probability distributions, with and without the use of technology.	10.C.5c Make predictions using probabilities associated with normally distributed events.