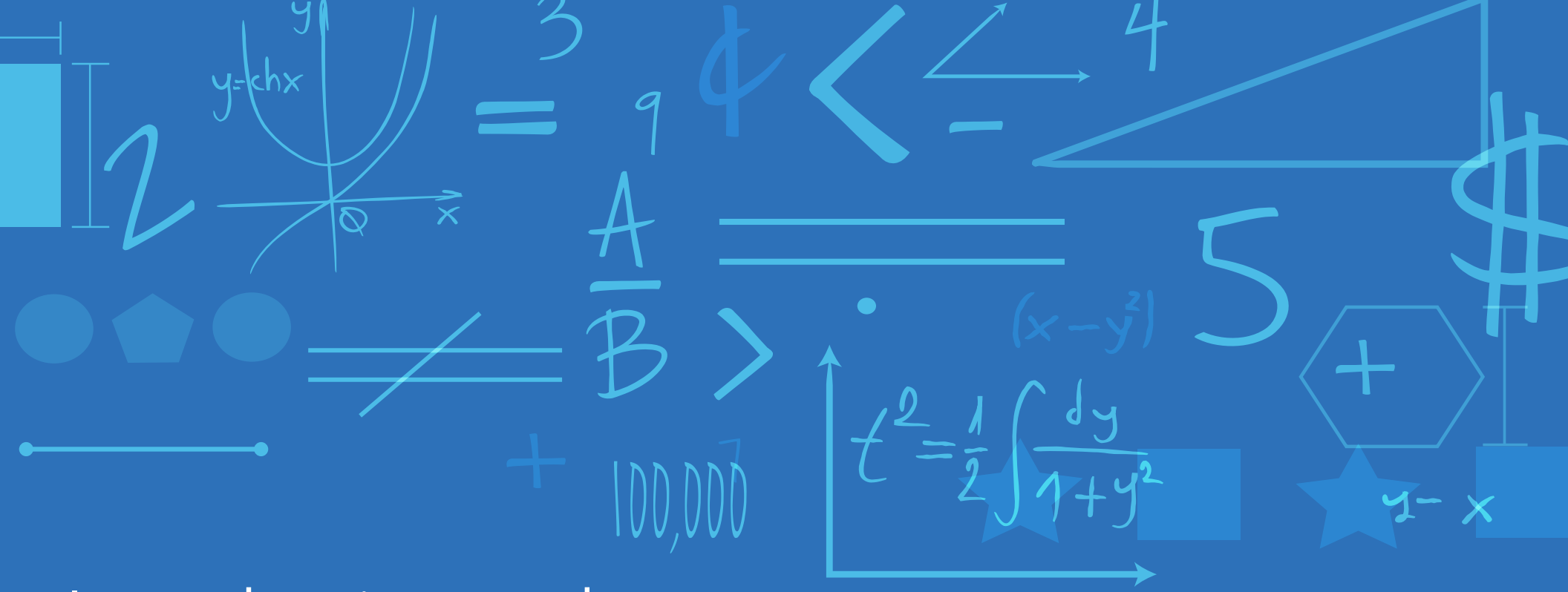

Introduction to the

Revised Mathematics TEKS

SIDE-BY-SIDE TEKS COMPARISON
MATHEMATICAL MODELS WITH APPLICATIONS

Texas Education Agency

Mathematical Models with Applications – Mathematics

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
(a) General requirements. The provisions of this section shall be implemented beginning September 1, 1998. Students can be awarded one-half to one credit for successful completion of this course. Recommended prerequisite: Algebra I.	(a) General requirements. Students can be awarded one-half to one credit for successful completion of this course. Prerequisite: Algebra I. This course must be taken before receiving credit for Algebra II.	Watch for potential updates to this requirement.	
	(b) Introduction. (1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on fluency and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.	A well balanced mathematics curriculum includes the college and career readiness standards. A focus on mathematical fluency and solid understanding allows for rich exploration of the key ideas of Mathematical Models with Applications.	
(b) Introduction. (1) In Mathematical Models with Applications, students continue to build on the K-8 and Algebra I foundations as they expand their understanding through other mathematical experiences. Students use algebraic, graphical, and geometric reasoning to recognize patterns and structure, to model information, and to solve problems from various disciplines. Students use mathematical methods to model and solve real-life applied problems involving money, data, chance, patterns, music, design, and science. Students use mathematical models from algebra, geometry, probability, and statistics and connections among these to solve problems from a wide variety of advanced applications in both mathematical and nonmathematical situations. Students use a variety of representations (concrete, pictorial, numerical, symbolic, graphical, and verbal), tools, and technology (including, but not limited to, calculators with graphing capabilities, data collection devices, and computers) to link modeling techniques and purely mathematical concepts and to solve applied problems.	(b) Introduction. (3) Mathematical Models with Applications is designed to build on knowledge and skills for mathematics in Kindergarten-Grade 8 and Algebra I. This mathematics course provides a path for students to succeed in Algebra II and prepares them for various post-secondary choices. Students learn to apply mathematics through experiences in personal finance, science, engineering, fine arts, and social sciences. Students use algebraic, graphical, and geometric reasoning to recognize patterns and structure, model information, solve problems, and communicate solutions. Students will select from tools such as physical objects; manipulatives; technology; including graphing calculators, data collection devices, and computers; and paper and pencil and from methods such as algebraic techniques, geometric reasoning, patterns, and mental math to solve problems.		

Content that is deleted by 2012 TEKS – Content that remains or is clarified in 2012 TEKS (● Stay) (●+Addition) (O Deletion) Content that is new in 2012 TEKS +

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
(b) Introduction. (2) As students do mathematics, they continually use problem-solving, language and communication, connections within and outside mathematics, and reasoning (justification and proof). Students also use multiple representations, technology, applications and modeling, and numerical fluency in problem-solving contexts.	(b) Introduction. (2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, paper and pencil, and technology and techniques such as mental math, estimation, and number sense to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	This highlights the emphasis of students' use of the mathematical process standards to acquire and demonstrate mathematical understanding.	

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
	(b) Introduction. (4) In Mathematical Models with Applications students will use a mathematical modeling cycle to analyze problems, understand problems better, and improve decisions. A basic mathematical modeling cycle is summarized below. The student will: (A) represent: (i) identify the variables in the problem and select those that represent essential features; and (ii) formulate a model by creating and selecting from representations such as geometric, graphical, tabular, algebraic, or statistical that describe the relationships between the variables; (B) compute: analyze and perform operations on these relationships between the variables to draw conclusions; (C) interpret: interpret the results of the mathematics in terms of the original problem; (D) revise: confirm the conclusions by comparing the conclusions with the problem and revising as necessary; and (E) report: report on the conclusions and the reasoning behind the conclusions.		
	(b) Introduction. (5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.		

	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(1)(A) The student uses a variety of strategies and approaches to solve both routine and non-routine problems. **The student is expected to compare and analyze various methods for solving a real-life problem.**	M(1)(A) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to apply mathematics to problems arising in everyday life, society, and the workplace.**	The revised SE has been placed into the mathematical process standards strand. The focus is on application in three areas: everyday life, society, and the workplace. This SE, when paired with a revised content SE, allows for increased relevance through connections within and outside mathematics.	
●+	M(1)(B) The student uses a variety of strategies and approaches to solve both routine and non-routine problems. **The student is expected to use multiple approaches (algebraic, graphical, and geometric methods) to solve problems from a variety of disciplines.**	M(1)(D) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.**	Student communication is expected to address three areas: mathematical ideas, reasoning, and implications of these ideas and reasoning. Communication can be through the use of symbols, diagrams, graphs, or language. The phrase "as appropriate" implies that students are assessing which communication tool to apply rather than trying only one or all of those listed. The revised SE has been placed into the mathematical process standards strand. The multiple approaches reflect the use of multiple representations. Specificity regarding these approaches has been added. Algebraic approaches may include symbols and language. Graphical approaches may include graphs and language. Geometric approaches may include symbols, diagrams, graphs, and language. The use of multiple representations includes translating and making connections among the representations.	

	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(1)(C) The student uses a variety of strategies and approaches to solve both routine and non-routine problems. **The student is expected to select a method to solve a problem, defend the method, and justify the reasonableness of the results.**	M(1)(B) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.**	The revised SE has been placed into the mathematical process standards strand. This process standard provides continuity through application of the same problem-solving model included in the TEKS for kindergarten through grade 8, as well as other high school mathematics courses.	
		M(1)(G) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.**	Students are expected to speak and write with precise mathematical language to explain and justify their thinking.	

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
+	M(1)(C) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.**	The phrase "as appropriate" indicates that students are assessing which tool and techniques to apply rather than trying only one or all of those listed.	
+	M(1)(E) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to create and use representations to organize, record, and communicate mathematical ideas.**	Students are expected to use representations for three purposes: to organize, record, and communicate mathematical ideas. Representations include verbal, graphical, tabular, and algebraic representations as well as diagrams. As students create and use representations, they will evaluate the effectiveness of their representations to ensure that they are communicating mathematical ideas with clarity.	
+	M(1)(F) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to analyze mathematical relationships to connect and communicate mathematical ideas.**	Students are expected to analyze relationships and to form connections with mathematical ideas. Students may form conjectures about mathematical representations based on patterns or sets of examples and non-examples. Forming connections with mathematical ideas extends past conjecturing to include verification through a deductive process.	

	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●+	M(2)(A) The student uses graphical and numerical techniques to study patterns and analyze data. **The student is expected to interpret information from various graphs, including line graphs, bar graphs, circle graphs, histograms, scatterplots, line plots, stem and leaf plots, and box and whisker plots to draw conclusions from the data.**	M(9)(A) **Mathematical modeling in social sciences.** The student applies mathematical processes and mathematical models to analyze data as it applies to social sciences. **The student is expected to interpret information from various graphs, including line graphs, bar graphs, circle graphs, histograms, scatterplots, dot plots, stem-and-leaf plots, and box and whisker plots to draw conclusions from the data and**	The revised SE has been placed into the mathematical modeling in social sciences strand. Line plots are now identified as dot plots for vertical alignment with the Kindergarten–Grade 8 TEKS. The focus is on sets of data related to the social sciences.	
		determine the strengths and weaknesses of conclusions.	The revised SE extends to include determining the strengths or weaknesses of the conclusions drawn from data.	
● O	M(2)(B) The student uses graphical and numerical techniques to study patterns and analyze data. **The student is expected to analyze numerical data using measures of central tendency, variability, and correlation in order to make inferences.**	M(9)(B) **Mathematical modeling in social sciences.** The student applies mathematical processes and mathematical models to analyze data as it applies to social sciences. **The student is expected to analyze numerical data using measures of central tendency (mean, median, and mode) and variability (range, interquartile range or IQR, and standard deviation) in order to make inferences with normal distributions.**	The revised SEs have been placed into the mathematical modeling in social sciences strand. Specificity has been added with the identification of the measures of central tendency (mean, median, and mode) and the measures of variability (range, interquartile range or IQR, and standard deviation). Specificity has been added to make inferences with normal distributions.	
		M(9)(D) **Mathematical modeling in social sciences.** The student applies mathematical processes and mathematical models to analyze data as it applies to social sciences. **The student is expected to use data from a sample to estimate population mean or population proportion.**	Students are expected to estimate the population mean or population proportion. Students may be expected to use a sample mean or sample proportion to validate the estimation.	
		M(9)(F) **Mathematical modeling in social sciences.** The student applies mathematical processes and mathematical models to analyze data as it applies to social sciences. **The student is expected to use regression methods available through technology to model linear and exponential functions, interpret correlations, and make predictions.**	The focus is on sets of data related to the social sciences. The focus is on prediction instead of inference.	

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	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(2)(C) The student uses graphical and numerical techniques to study patterns and analyze data. **The student is expected to analyze graphs from journals, newspapers, and other sources to determine the validity of stated arguments.**	M(9)(E) **Mathematical modeling in social sciences.** The student applies mathematical processes and mathematical models to analyze data as it applies to social sciences. **The student is expected to analyze marketing claims based on graphs and statistics from electronic and print media and justify the validity of stated or implied conclusions.**	The revised SE has been placed into the mathematical modeling in social sciences strand. The revised SE extends to include statistics in addition to graphs when analyzing claims. Specificity has been added to include electronic and print media, which may include journals and newspapers. The revised SE extends to include justifying implied conclusions in addition to stated arguments or conclusions. The focus is on sets of data related to the social sciences.	
●	M(2)(D) The student uses graphical and numerical techniques to study patterns and analyze data. **The student is expected to use regression methods available through technology to describe various models for data such as linear, quadratic, exponential, etc., select the most appropriate model, and use the model to interpret information.**	M(9)(F) **Mathematical modeling in social sciences.** The student applies mathematical processes and mathematical models to analyze data as it applies to social sciences. **The student is expected to use regression methods available through technology to model linear and exponential functions, interpret correlations, and make predictions.**	The revised SE has been placed into the mathematical modeling in social sciences strand. Specificity has been added to use regression to model linear and exponential functions. Specificity has been added to interpret correlations for linear and exponential models. When this SE is paired with the mathematical process standards M(1)(A)(C)(D), students may be expected to analyze a problem situation, select a model, and interpret the information from that model. The focus is on sets of data related to the social sciences that may be modeled with linear and exponential functions. Additional applications of this material can be found in M(4)(A),(B) and (C) as well as M(5)(B).	
		M(5)(C) **Mathematical modeling in science and engineering.** The student applies mathematical processes with algebraic techniques to study patterns and analyze data as it applies to science. **The student is expected to use quadratic functions to model motion.**	When this SE is paired with mathematical process standard M(1)(C), students may be expected to use technology-based regression tools to model motion using quadratic functions. The focus is on sets of data related to science and engineering that may be modeled with quadratic functions.	

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
+	M(9)(C) **Mathematical modeling in social sciences.** The student applies mathematical processes and mathematical models to analyze data as it applies to social sciences. **The student is expected to distinguish the purposes and differences among types of research, including surveys, experiments, and observational studies.**		

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	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(3)(A) The student develops and implements a plan for collecting and analyzing data (qualitative and quantitative) in order to make decisions. **The student is expected to formulate a meaningful question, determine the data needed to answer the question, gather the appropriate data, analyze the data, and draw reasonable conclusions.**	M(10)(A) **Mathematical modeling in social sciences.** The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results of the study. **The student is expected to formulate a meaningful question, determine the data needed to answer the question, gather the appropriate data, analyze the data, and draw reasonable conclusions.**	The revised SE has been placed into the mathematical modeling in social sciences strand. The knowledge and skills statement simplifies the context for this student expectation with the phrase, "design a study." Specificity has been added in the knowledge and skills statement to include graphical, numerical, and analytical techniques to communicate the results of the study. The focus is on conducting a study related to the social sciences. The question may be answered with qualitative data, quantitative data, or both.	
●	M(3)(B) The student develops and implements a plan for collecting and analyzing data (qualitative and quantitative) in order to make decisions. **The student is expected to communicate methods used, analyses conducted, and conclusions drawn for a data-analysis project by written report, visual display, oral report, or multi-media presentation.**	M(10)(B) **Mathematical modeling in social sciences.** The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results of the study. **The student is expected to communicate methods used, analyses conducted, and conclusions drawn for a data-analysis project through the use of one or more of the following: a written report, a visual display, an oral report, or a multi-media presentation.**	The revised SE has been placed into the mathematical modeling in social sciences strand. The knowledge and skills statement simplifies the context for this student expectation with the phrase "design a study." Specificity has been added in the knowledge and skills statement to include graphical, numerical, and analytical techniques to communicate the results of the study. The focus is on conducting a study related to the social sciences. The question may be answered with qualitative data, quantitative data, or both. Specifity has been added to affirm that students may be expected to combine presentation formats when communicating the results of the study.	

	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(3)(C) The student develops and implements a plan for collecting and analyzing data (qualitative and quantitative) in order to make decisions. **The student is expected to determine the appropriateness of a model for making predictions from a given set of data.**	M(9)(F) **Mathematical modeling in social sciences.** The student applies mathematical processes and mathematical models to analyze data as it applies to social sciences. **The student is expected to use regression methods available through technology to model linear and exponential functions, interpret correlations, and make predictions.**	The revised SE has been placed into the mathematical modeling in social sciences strand. The focus is on sets of data related to the social sciences that may be modeled with linear and exponential functions. When this SE is paired with mathematical process standards M(1)(B) or (G), the appropriateness of the model impacts the reasonableness of the solution. Students may be expected to justify or make an argument for the chosen model. Correlations may or may not be used to justify predictions.	

	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(4)(A) The student uses probability models to describe everyday situations involving chance. **The student is expected to compare theoretical and empirical probability.**	M(8)(B) **Mathematical modeling in social sciences.** The student applies mathematical processes to determine the number of elements in a finite sample space and compute the probability of an event. **The student is expected to compare theoretical to empirical probability.**	The revised SE has been placed into the mathematical modeling in social sciences strand. The focus is on events related to the social sciences.	
●	M(4)(B) The student uses probability models to describe everyday situations involving chance. **The student is expected to use experiments to determine the reasonableness of a theoretical model such as binomial, geometric, etc.**	M(8)(C) **Mathematical modeling in social sciences.** The student applies mathematical processes to determine the number of elements in a finite sample space and compute the probability of an event. **The student is expected to use experiments to determine the reasonableness of a theoretical model such as binomial or geometric.**	The revised SE has been placed into the mathematical modeling in social sciences strand. Clarification has been made to use binomial and geometric models. Students should be provided the theoretical model in order to design an appropriate experiment. The focus is on conducting an experiment related to the social sciences.	
+		M(8)(A) **Mathematical modeling in social sciences.** The student applies mathematical processes to determine the number of elements in a finite sample space and compute the probability of an event. **The student is expected to determine the number of ways an event may occur using combinations, permutations, and the Fundamental Counting Principle.**	The focus is on events related to the social sciences.	

	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(5)(A) The student uses functional relationships to solve problems related to personal income. **The student is expected to use rates, linear functions, and direct variation to solve problems involving personal finance and budgeting, including compensations and deductions.**	M(2)(A) **Mathematical modeling in personal finance.** The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to personal finance. **The student is expected to use rates and linear functions to solve problems involving personal finance and budgeting, including compensations and deductions.**	The revised SE has been placed into the mathematical modeling in personal finance strand. Though direct variation is not explicitly stated in the revised SE, it is subsumed within linear functions. When this SE is paired with mathematical process standard M(1)(D), rates and functions may be represented graphically or numerically.	
●	M(5)(B) The student uses functional relationships to solve problems related to personal income. **The student is expected to solve problems involving personal taxes.**	M(2)(B) **Mathematical modeling in personal finance.** The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to personal finance. **The student is expected to solve problems involving personal taxes.**	The revised SE has been placed into the mathematical modeling in personal finance strand. When this SE is paired with mathematical process standard M(1)(D), students may be expected to communicate their solution processes using multiple representations.	
●	M(5)(C) The student uses functional relationships to solve problems related to personal income. **The student is expected to analyze data to make decisions about banking.**	M(2)(C) **Mathematical modeling in personal finance.** The student uses mathematical processes with graphical and numerical techniques to study patterns and analyze data related to personal finance. **The student is expected to analyze data to make decisions about banking, including options for online banking, checking accounts, overdraft protection, processing fees, and debit card/ATM fees.**	The revised SE has been placed into the mathematical modeling in personal finance strand. Specificity has been added to include online banking options, checking accounts, overdraft protection, processing fees, and debit card/ATM fees. When this SE is paired with mathematical process standard M(1)(D), students may be expected to communicate their solution processes using multiple representations.	

	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(6)(A) The student uses algebraic formulas, graphs, and amortization models to solve problems involving credit. **The student is expected to analyze methods of payment available in retail purchasing and compare relative advantages and disadvantages of each option.**	M(3)(B) **Mathematical modeling in personal finance.** The student uses mathematical processes with algebraic formulas, graphs, and amortization modeling to solve problems involving credit. **The student is expected to analyze personal credit options in retail purchasing and compare relative advantages and disadvantages of each option.**	The revised SE has been placed into the mathematical modeling in personal finance strand. Specificity has been added to methods of payment to focus on personal credit options. Personal credit options may include deferred payments, credit cards, and personal loans. These options have variance to analyze as well with interest rates, term lengths, and payment timelines.	
●+	M(6)(B) The student uses algebraic formulas, graphs, and amortization models to solve problems involving credit. **The student is expected to use amortization models to investigate home financing and compare buying and renting a home.**	M(3)(A) **Mathematical modeling in personal finance.** The student uses mathematical processes with algebraic formulas, graphs, and amortization modeling to solve problems involving credit. **The student is expected to use formulas to generate tables to display series of payments for loan amortizations resulting from financed purchases.**	The revised SE has been placed into the mathematical modeling in personal finance strand. The revised SE extends to include loan amortizations for any financed purchase. Students are expected to use formulas to generate amortization tables to represent a series of payments.	
		M(3)(C) **Mathematical modeling in personal finance.** The student uses mathematical processes with algebraic formulas, graphs, and amortization modeling to solve problems involving credit. **The student is expected to use technology to create amortization models to investigate home financing and compare buying a home to renting a home.**	The revised SE has been placed into the mathematical modeling in personal finance strand. Specificity has been added to use technology to create amortization tables.	
●	M(6)(C) The student uses algebraic formulas, graphs, and amortization models to solve problems involving credit. **The student is expected to use amortization models to investigate automobile financing and compare buying and leasing a vehicle.**	M(3)(D) **Mathematical modeling in personal finance.** The student uses mathematical processes with algebraic formulas, graphs, and amortization modeling to solve problems involving credit. **The student is expected to use technology to create amortization models to investigate automobile financing and compare buying a vehicle to leasing a vehicle.**	The revised SE has been placed into the mathematical modeling in personal finance strand. Specificity has been added to use technology to create amortization tables.	

	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(7)(A) The student uses algebraic formulas, numerical techniques, and graphs to solve problems related to financial planning. **The student is expected to analyze types of savings options involving simple and compound interest and compare relative advantages of these options.**	M(4)(C) **Mathematical modeling in personal finance.** The student uses mathematical processes with algebraic formulas, numerical techniques, and graphs to solve problems related to financial planning. **The student is expected to analyze types of savings options involving simple and compound interest and compare relative advantages of these options.**	The revised SE has been placed into the mathematical modeling in personal finance strand. Types of savings options may include savings accounts, money market accounts, and certificates of deposit. These options may be analyzed with varying interest rates, safety of returns, flexibility, and liquidity of assets.	
●	M(7)(B) The student uses algebraic formulas, numerical techniques, and graphs to solve problems related to financial planning. **The student is expected to analyze and compare coverage options and rates in insurance.**	M(4)(A) **Mathematical modeling in personal finance.** The student uses mathematical processes with algebraic formulas, numerical techniques, and graphs to solve problems related to financial planning. **The student is expected to analyze and compare coverage options and rates in insurance.**	The revised SE has been placed into the mathematical modeling in personal finance strand. Types of insurance may include personal, life, health, car, homeowner's, and rental insurance.	
●+	M(7)(C) The student uses algebraic formulas, numerical techniques, and graphs to solve problems related to financial planning. **The student is expected to investigate and compare investment options including stocks, bonds, annuities, and retirement plans.**	M(4)(B) **Mathematical modeling in personal finance.** The student uses mathematical processes with algebraic formulas, numerical techniques, and graphs to solve problems related to financial planning. **The student is expected to investigate and compare investment options, including stocks, bonds, annuities,** **certificates of deposit,** **and retirement plans.**	The revised SE has been placed into the mathematical modeling in personal finance strand. Specificity has been added to include certificates of deposit.	

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	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
●	M(8)(A) The student uses algebraic and geometric models to describe situations and solve problems. **The student is expected to use geometric models available through technology to model growth and decay in areas such as population, biology, and ecology.**	M(5)(B) **Mathematical modeling in science and engineering.** The student applies mathematical processes with algebraic techniques to study patterns and analyze data as it applies to science. **The student is expected to use exponential models available through technology to model growth and decay in areas including radioactive decay.**	The revised SE has been placed into the mathematical modeling in science and engineering strand. The use of geometric models has been specified as exponential models to include all real inputs instead of only integer inputs. Specificity has been added to include the area of radioactive decay as a context for modeling exponential functions. Other areas may address related topics in science and engineering.	
●+	M(8)(B) The student uses algebraic and geometric models to describe situations and solve problems. **The student is expected to use trigonometric ratios and functions available through technology to calculate distances and model periodic motion.**	M(6)(D) **Mathematical modeling in science and engineering.** The student applies mathematical processes with algebra and geometry to study patterns and analyze data as it applies to architecture and engineering. **The student is expected to use trigonometric ratios to calculate distances and angle measures as applied to fields.**	The revised SE has been placed into the mathematical modeling in science and engineering strand. Fields of study may include physics or mechanical engineering.	
		M(7)(A) **Mathematical modeling in fine arts.** The student uses mathematical processes with algebra and geometry to study patterns and analyze data as it applies to fine arts. **The student is expected to use trigonometric ratios and functions available through technology to model periodic behavior in art and music.**	The revised SE has been placed into the mathematical modeling in fine arts strand. Specificity has been added to model periodic behavior in art and music.	
●	M(8)(C) The student uses algebraic and geometric models to describe situations and solve problems. **The student is expected to use direct and inverse variation to describe physical laws such as Hook's, Newton's, and Boyle's laws.**	M(5)(A) **Mathematical modeling in science and engineering.** The student applies mathematical processes with algebraic techniques to study patterns and analyze data as it applies to science. **The student is expected to use proportionality and inverse variation to describe physical laws such as Hook's Law, Newton's Second Law of Motion, and Boyle's Law.**	The revised SE has been placed into the mathematical modeling in science and engineering strand. Direct variation has been restated as proportionality. Specificity has been added to address Newton's Second Law of Motion.	

	Old TEKS	Current TEKS (2012)	Supporting Information	Notes
	M(9)(A) The student uses algebraic and geometric models to represent patterns and structures.	M(6)(A) **Mathematical modeling in science and engineering.** The student applies mathematical processes with algebra and geometry to study patterns and analyze data as it applies to architecture and engineering. **The student is expected to use similarity, geometric transformations, symmetry, and perspective drawings to describe mathematical patterns and structure in architecture.**	The revised SE has been placed into the mathematical modeling in science and engineering strand. The current SE has been separated into two SEs. This SE focuses on mathematical patterns and structure in architecture as it relates to science and engineering. Specificity has been added with similarity. Geometric transformations include dilations, which generate similar figures.	
●+	**The student is expected to use geometric transformations, symmetry, and perspective drawings to describe mathematical patterns and structure in art and architecture.**	M(7)(B) **Mathematical modeling in fine arts.** The student uses mathematical processes with algebra and geometry to study patterns and analyze data as it applies to fine arts. **The student is expected to use similarity, geometric transformations, symmetry, and perspective drawings to describe mathematical patterns and structure in art**	The revised SE has been placed into the mathematical modeling in fine arts strand. The current SE has been separated into two SEs. This SE focuses on mathematical patterns and structure in fine arts. Specificity has been added with similarity. Geometric transformations include dilations, which generate similar figures.	
		and photography.	Photography as an area of study for mathematical patterns and structure in fine arts has been added.	
●	M(9)(B) The student uses algebraic and geometric models to represent patterns and structures. **The student is expected to use geometric transformations, proportions, and periodic motion to describe mathematical patterns and structure in music.**	M(7)(C) **Mathematical modeling in fine arts.** The student uses mathematical processes with algebra and geometry to study patterns and analyze data as it applies to fine arts. **The student is expected to use geometric transformations, proportions, and periodic motion to describe mathematical patterns and structure in music.**	The revised SE has been placed into the mathematical modeling in fine arts strand.	
+		M(6)(B) **Mathematical modeling in science and engineering.** The student applies mathematical processes with algebra and geometry to study patterns and analyze data as it applies to architecture and engineering. **The student is expected to use scale factors with two-dimensional and three-dimensional objects to demonstrate proportional and non-proportional changes in surface area and volume as applied to fields.**	The focus is on the application of scale factors in fields of study related to science and engineering.	

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
+	M(6)(C) **Mathematical modeling in science and engineering.** The student applies mathematical processes with algebra and geometry to study patterns and analyze data as it applies to architecture and engineering. **The student is expected to use the Pythagorean Theorem and special right-triangle relationships to calculate distances.**	The focus is on the application of the Pythagorean Theorem to calculate distances in fields of study related to science and engineering.	
+	M(7)(D) **Mathematical modeling in fine arts.** The student uses mathematical processes with algebra and geometry to study patterns and analyze data as it applies to fine arts. **The student is expected to use scale factors with two-dimensional and three-dimensional objects to demonstrate proportional and non-proportional changes in surface area and volume as applied to fields.**	The focus is on the application of scale factors in fields related to the fine arts.	