| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| **Algebraic Models in Science, Engineering, and Social Sciences** | | |
| | Direct and Inverse Variation | |
| | | Recognize direct and inverse variation. |
| | | Model and solve direct and inverse variation problems. |
| | Quadratic Functions | |
| | | Evaluate functions of the form y = ax2 |
| | | Graph functions of the form y = ax2 |
| | | Interpret the coordinates of points on the graph y = ax2 |
| | | Solve an equation of the form ax2 = c using square roots |
| | Quadratic Regression Models | |
| | | Determine quadratic regressions models |
| | | Solve problems using quadratic regressions models |
| | Use Exponential Functions | |
| | | Determine growth and decay factors for exponential functions represented by a table of values or an equation |
| | | Graph exponential functions defined by y = abx |
| | | Determine the doubling and halving time |
| | Equations of Exponential Functions | |
| | | Determine the equation of an exponential function that best fits the given data |
| | | Make predictions using an exponential regression equation |
| | | Determine whether a linear or exponential model best fits given data |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| | Unit Test | |
| **Geometric Relationships** | | |
| | Trigonometric Ratios | |
| | | Given an acute angle of a right triangle, label the hypotenuse, opposite, and adjacent sides. |
| | | Given an acute angle of a right triangle, write ratios for sine, cosine, and tangent. |
| | | Relate trigonometric ratios of similar triangles and the acute angles of a right triangle. |
| | Right Triangles | |
| | | Identify sides and corresponding angles of a right triangle |
| | | Use proportions to determine side lengths of similar right triangles |
| | | Determine the sine, cosine, and tangent of an angle using right triangles |
| | | Determine the sine, cosine, and tangent of an acute angle by using technology |
| | Angle Relationships | |
| | | Identify complementary angles |
| | | Demonstrate that the sine and cosine of complementary angles are equal |
| | Inverse Functions | |
| | | Determine the inverse tangent of an angle |
| | | Determine the inverse sine and cosine of an angle using technology |
| | Unit Test | |
| **Applications of Algebra and Geometry** | | |
| | Modeling with Periodic Functions | |
| | | Model and solve real-world problems using periodic functions. |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| | Properties of Transformations | |
| | | Identify isometric transformations. |
| | | Characterize isometric transformations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. |
| | Symmetries in Shapes | |
| | | Identify reflectional symmetry in geometric figures and the number of lines of symmetry. |
| | | Identify rotational symmetry and its order in geometric figures. |
| | Dilations | |
| | | Identify the differences between isometric transformations and dilations. |
| | | Calculate the scale factor for a dilated figure in the coordinate plane. |
| | | Use an algebraic rule or given scale factor to dilate a figure in the coordinate plane. |
| | Similar Triangles | |
| | | Recognize geometric properties of similar triangles |
| | | Use similar triangles in indirect measurement |
| | Changing Dimensions of 3-D Figures | |
| | | Identify similar solids and determine their scale factors. |
| | | Determine and describe how proportional or nonproportional changes in linear dimensions of a shape affect other measurements such as perimeter, area, surface area, or volume. |
| | | Solve problems about length, area, and volume measures using scale factors. |
| | Unit Test | |
| **Management of Personal Finances: Part One** | | |
| | The Financial Plan | |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| | | Describe components of a financial plan. |
| | | Summarize various responsibilities for personal financial decisions. |
| | | Analyze data, including spreadsheets, as it relates to financial planning. |
| | Career Planning | |
| | | Analyze criteria for selecting a career. |
| | | Identify the impact of career choices on both income and financial stability. |
| | | Correlate the relationship between career choices and financial stability. |
| | Net Worth | |
| | | Determine the difference between an asset and a liability. |
| | | Calculate net worth. |
| | Financial Goals | |
| | | Demonstrate how income and personal goals affect financial planning and decisions. |
| | | Modify an existing financial plan based on changes in income or personal goals. |
| | Gross Pay vs. Net Pay | |
| | | Recognize the difference between gross and net pay. |
| | | Compute deductions based on gross pay. |
| | | Analyze how payroll deductions modify an employee’s disposable income. |
| | Employee Benefits | |
| | | Explain the impact of benefits and expenses on  total employment compensation. |
| | | Compare total job benefits in relation to prospective employment. |
| | Selecting a Bank | |
| | | Compare financial institutions in terms of personal banking needs. |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| | | Select a financial institution using given data. |
| | Checking Accounts | |
| | | Summarize the process of opening a checking account and making transactions. |
| | | Reconcile a checking account given a sample bank statement. |
| | Using a Debit Card | |
| | | Apply cash management strategies when using a debit card. |
| | | Analyze how overdraft and withdrawal fees affect account balances. |
| | Savings Accounts | |
| | | Summarize the process of opening a savings account and making transactions. |
| | | Make inferences into how saving money contributes to financial well-being. |
| | Unit Test | |
| **Management of Personal Finances: Part Two** | | |
| | Other Bank Accounts | |
| | | Compare various savings accounts. |
| | | Identify the benefits of online banking. |
| | | Solve problems related to bank account transactions. |
| | Tax Basics | |
| | | Identify different types of taxes. |
| | | Use given data to solve problems related to taxes. |
| | Social Security and Medicare | |
| | | Explain the overall purposes and structure of the Social Security and Medicare programs. |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| | | Analyze the impact of Social Security and Medicare taxes on income. |
| | Personal Income and Property Taxes | |
| | | Use given data to determine how taxes modify income. |
| | | Recognize how revenue from property taxes is used by state and local governments. |
| | Tax Returns | |
| | | Describe different methods used to file taxes. |
| | | Complete a yearly federal income tax return. |
| | Using Credit | |
| | | Identify types of credit plans. |
| | | Compare credit plans. |
| | | Evaluate the terms and conditions of credit cards. |
| | Credit vs. Cash | |
| | | Compare the advantages and disadvantages of using cash versus a credit card. |
| | | Analyze the impact of using a credit card as it relates to money management. |
| | Long Term Purchases | |
| | | Compare the advantages and disadvantages of using a credit card to make long-term purchases. |
| | | Calculate total cost of purchasing consumer durable goods over time. |
| | Unit Test | |
| **Cumulative Exam** | | |
| | Cumulative Exam Review | |
| | Cumulative Exam | |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| **Savings, Investments, and Insurance: Part One** | | |
| | Life Insurance | |
| | | Calculate life insurance premiums. |
| | | Analyze different life insurance plans. |
| | Auto Insurance | |
| | | Calculate auto insurance premiums. |
| | | Analyze different auto insurance plans. |
| | Health Insurance | |
| | | Calculate health insurance premiums. |
| | | Analyze different health insurance plans. |
| | Homeowners Insurance | |
| | | Calculate homeowners insurance premiums. |
| | | Analyze different homeowners insurance plans. |
| | Investing in Stocks | |
| | | Demonstrate how to evaluate advisors' credentials. |
| | | Compare professional advisors and their services. |
| | | Calculate annual stock dividends. |
| | Buying and Selling Stock | |
| | | Determine the cost of purchasing stock. |
| | | Calculate the proceeds from the sale of stock. |
| | | Track and analyze changes in stock prices. |
| | Unit Test | |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| **Savings, Investments, and Insurance: Part Two** | | |
| | Buying Bonds | |
| | | Identify the different types of bonds. |
| | | Calculate the market price of bonds. |
| | | Determine and evaluate the total investment in bonds. |
| | Stocks vs. Bonds | |
| | | Compare the risk, return and liquidity of stocks and bonds. |
| | Mutual Funds | |
| | | Calculate profit or loss from mutual fund investments. |
| | Annuities | |
| | | Distinguish between an ordinary annuity and an annuity due. |
| | | Determine the future value of an ordinary annuity using a formula. |
| | | Determine the present value of an ordinary annuity. |
| | Retirement Savings Options | |
| | | Compare and contrast different types of retirement plans. |
| | | Calculate the future value of retirement plans. |
| | | Interpret data to determine an effective retirement plan. |
| | Interest | |
| | | Distinguish between simple and compound interest |
| | | Apply the compound interest formula to determine future values of a lump sum investment |
| | | Determine effective interest rate |
| | | Apply the present value formula |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| | Unit Test | |
| **Amortization of Loans** | | |
| | Mortgages | |
| | | Determine the amount of a down payment and points in a mortgage |
| | | Determine monthly mortgage payments using a table |
| | | Determine total interest on mortgages |
| | | Prepare a partial amortization schedule of a mortgage |
| | | Determine if borrowers qualify for a mortgage |
| | Buying vs. Renting a Home | |
| | | Identify advantages and disadvantages of property ownership. |
| | | Investigate costs associated with renting. |
| | Amortization | |
| | | Determine the amortization payment on a loan using a formula |
| | | Determine the amortization payment of a loan using technology |
| | | Solve problems involving repaying a loan or liquidating a sum of money by amortization model |
| | | Use technology to determine past and present values of annuities |
| | Financing a Car | |
| | | Use amortization models to investigate automobile financing. |
| | | Calculate costs related to buying a car. |
| | Leasing vs. Buying a Car | |
| | | Calculate costs of leasing a vehicle. |
| | | Compare buying and leasing a vehicle. |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| | Unit Test | |
| **Probability** | | |
| | Probability | |
| | | Determine relative frequency for a set of data |
| | | Determine theoretical and experimental probability |
| | | Simulate an experiment |
| | | Understand properties of probability |
| | Sample Space | |
| | | Apply the multiplication principle of counting |
| | | Determine the sample space for a probability distribution |
| | | Display a sample space with a tree diagram |
| | Permutations and Combinations | |
| | | Determine the number of permutations |
| | | Determine the number of combinations |
| | Binomial Probability | |
| | | Recognize components of binomial experiments |
| | | Calculate binomial probabilities |
| | Unit Test | |
| **Statistical Data Analysis, Research, and Marketing** | | |
| | Designing a Study | |
| | | Classify study types. |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| | | Classify sampling methods. |
| | | Determine if a sample is biased. |
| | | Analyze study types and sampling methods. |
| | Representing Data | |
| | | Describe a data set using measures of central tendency and range. |
| | | Determine if a representation of data is misleading. |
| | Misleading Graphs | |
| | | Recognize scaling of axes on graphs |
| | | Scaling axes of graphs |
| | Bar and Circle Graphs | |
| | | Read tables |
| | | Read and interpret bar graphs |
| | | Read and interpret circle graphs |
| | Scatterplots | |
| | | Construct scatterplots |
| | | Estimate and draw a best fit line |
| | | Estimate errors of line of best fit |
| | Organizing Data | |
| | | Collect and organize data |
| | | Plot data in a scatterplot |
| | | Recognize linear patterns in data |
| | Data Distribution | |

| TX-Mathematical Models with Applications | | Scope and Sequence |
|---|---|---|
| **Unit** | **Lesson** | **Objectives** |
| | | Organize data with frequency tables, dotplots, and histograms |
| | | Determine measures of central tendency |
| | | Recognize symmetric and skewed frequency distributions |
| | Variability | |
| | | Measure the variability of frequency distributions |
| | | Use standard deviation to understand mean |
| | | Read and understand box-and-whisker plots |
| | Standard Deviation | |
| | | Calculate variance and standard deviation of a sample or population. |
| | | Interpret standard deviation as it pertains to the spread of a graph. |
| | | Determine if a value is within a given z-score. |
| | Performance Task: Super Survey Simulator | |
| | Unit Test | |
| **Cumulative Exam** | | |
| | Cumulative Exam Review | |
| | Cumulative Exam | |