
Coal City Unit District #1
Financial Algebra
Math Curriculum

- MA.FA:1** **Students will be able to interpret, simplify, and solve algebraic expressions and linear equations by applying properties of operations, with an emphasis on understanding the structure of expressions and using algebra to model and solve real-world problems. (Q.A.1, RN.B.3, RPA.A.3, CED.A.1, REI.A.1, IF.A.2, IF.B.5, BF.A.1, SSE.A.1, BF.A.1)**
- MA.FA:1-1 Express rational numbers as a fraction, decimal, and percent, and convert between the three
- MA.FA:1-2 Calculate percentages
- MA.FA:1-3 Understand and create an expression in function notation
- MA.FA:1-4 Evaluate the domain and range of a function from its constraints
- MA.FA:1-5 Evaluate functions for a specific input value or set of values
- MA.FA:1-6 Use piecewise-linear equations without graphing in a realistic context
- MA.FA:1-7 Write equations for piecewise functions
- MA.FA:1-8 Analyze proportional relationships
- MA.FA:2** **Students will be able to analyze, solve, and graph linear equations and inequalities in one variable and apply them to real-world and mathematical problems. (IF.B.4, IF.C.9, Q.A.1, BF.A.1, LE.A.1.B, LE.A.2, IF.B.5)**
- MA.FA:2-1 Compare two different graph representations of account balance data. Analyze real-world data presented in a pie chart and bar graph
- MA.FA:2-2 Calculate account yields with percents using appropriate units
- MA.FA:2-3 Explore and describe linear functions using pattern recognition. Write an equation for a linear function based on pattern
- MA.FA:2-4 Write a linear equation in slope-intercept form from a table and word problem. Evaluate a linear expression by plugging in a given x-value
- MA.FA:2-5 Apply linear equations to real-world wage scenario.
- MA.FA:2-6 Analyze graphs which represent yields for different types of bank accounts
- MA.FA:2-7 Graph data point given in a table to create a scatter plot. Use technology to find a linear regression equation. Use a linear regression model to make predictions about the given data
- MA.FA:3** **Students will be able to analyze, solve, and graph systems of equations in more than one variable and apply them to real-world and mathematical problems. (IF.B.4, IF.C.7.A, BF.A.1, CED.A.2, SSE.B.3, RPA.3, IF.B.5, REI.A.1, REI.B.3, REI.C.5, LE.A.1, LE.A.3, LE.B.5)**

- MA.FA:3-1 Graph linear equations representing a saving account balance with a constant rate of deposit
- MA.FA:3-2 Graph, interpret, and find solutions of systems of linear equations in slope intercept form
- MA.FA:3-3 Graph, interpret, and find solutions of systems of linear equations in standard form
- MA.FA:3-4 Convert linear equations from standard form to slope-intercept form
- MA.FA:3-5 Interpret real-world data presented in different types of charts and graphs
- MA.FA:3-6 Write a linear equation in slope-intercept form from a word problem. Solve a linear equation from a word problem
- MA.FA:3-7 Solve systems of equations using the substitution methods
- MA.FA:3-8 Solve systems of linear equations by elimination
- MA.FA:3-9 Explore compound interest equation
- MA.FA:3-10 Calculate percent change. Compare the graphs of exponential and linear growth in a real-world context

MA.FA:4 Students will be able to analyze, solve, and graph systems of inequalities in more than one variable and apply them to real-world and mathematical problems. (IF.C.7.A, BF.A.1, LE.B.5, REI.D.12, CED.A.3, CED.A.1, EE.B.4, IF.B.4, IF.B.5)

- MA.FA:4-1 Create a mathematical model in the form of a budget
- MA.FA:4-2 Graph linear inequalities and identify solutions. Write linear inequalities from word problems
- MA.FA:4-3 Create a mathematical model in the form of a budget
- MA.FA:4-4 Write equations that represent real life scenarios
- MA.FA:4-5 Graph systems of linear inequalities. State solutions to the system using the solution region on the graph
- MA.FA:4-6 Represent constraints by equations or inequalities. Understand how changing parameters alters inequalities with two variables
- MA.FA:4-7 Identify and contextualize solutions to a system of inequalities
- MA.FA:4-8 Graph the solutions to a linear inequality in two variables with multiple constraints. Solve a system of inequalities graphically
- MA.FA:4-9 Calculate averages

MA.FA:5 Students will be able to analyze, solve, and graph exponential functions and apply them to real-world and mathematical problems. (LE.B.5, LE.A.1, LE.A.1.A, LE.A.3, LE.A.1.C, IF.C.8, SSE.A.1, IF.B.4, IF.C.7, CED.A.1)

- MA.FA:5-1 Compare the exponential growth of investments and savings accounts with different rates of return
- MA.FA:5-2 Recognize that exponential patterns grow by a constant growth factor. Distinguish between exponential and linear functions
- MA.FA:5-3 Recognize and define the parts of an exponential function. Write

	exponential functions to model a given situation. Evaluate and solve exponential functions
MA.FA:5-4	Compare linear and exponential growth patterns. Apply compound interest formula over successive periods
MA.FA:5-5	Write percent change exponential functions given the necessary values. Find the rate of growth and decay given the equation
MA.FA:5-6	Compare linear and exponential growth patterns. Calculate percent growth.
MA.FA:5-7	Write equations to assess investment performance. Utilize a spreadsheet as a tool to compare data and do repeat calculations
MA.FA:6	Students will be able to analyze, solve, and graph exponential functions and apply them to real-world and mathematical problems. (IF.C.8.B, LE.A.1.B, LE.A.2, LE.B.5, IF.A.2, IF.C.7, LE.A.1, LE.A.3, ID.B.6.A, LE.A.2, LE.B.5, BF.B.5, LE.A.4, SSE.A.1, IF.B.5)
MA.FA:6-1	Write exponential functions that model the growth of investments
MA.FA:6-2	Use exponential functions to analyze the long-term impact of investing fees
MA.FA:6-3	Identify and describe various components of exponential functions (asymptotes, end behavior, changing coefficients). Graph exponential functions
MA.FA:6-4	Use technology to find the line of best fit and trends in exponential graphs
MA.FA:6-5	Use a spreadsheet to create a dollar-cost averaging calculation
MA.FA:6-6	Introduce logarithmic functions and compare them to exponential functions
MA.FA:6-7	Interpret exponential expressions in context. Construct exponential functions
MA.FA:7	Students can select the appropriate function to model a real world situation. Students will use a variety of techniques to find solutions and interpret different graphical representations. (SSE.A.1, IC.B.6, LE.A.1.C, LE.A.2, BF.A.1, RPA.A.3, LE.B.5, IF.A.3, BF.A.1.A, BF.A.1.B, IF.B.4, IF.C.7)
MA.FA:7-1	Calculate simple interest. Read and interpret data presented as multi-line graphs and stacked line graphs
MA.FA:7-2	Use the compound interest formula given a financial situation and interpret its result
MA.FA:7-3	Calculate with percentages
MA.FA:7-4	Analyze exponential growth rate using a real-world scenario about loan repayment and investment returns
MA.FA:7-5	Write a recursive formula for a given sequence. Use a recursive formula to model debt repayment
MA.FA:7-6	Create an amortization table using recursive formulas

MA.FA:7-7 Solve multi-step word problems. Use a recursive sequence to model debt repayment

MA.FA:8 Students will develop the ability to apply statistical concepts and methods to analyze and make informed decisions about personal and real-world financial situations, including budgeting, investments, loans, and risk assessment. (IC.A.1, IC.B.6, ID.A.1, ID.A.2, ID.A.3, REI.A.2)

- MA.FA:8-1 Calculate the interest accrued with different debt payoff method
- MA.FA:8-2 Interpret and create graphical representations of data using various methods (box plot, 5 number summary, range, interquartile range)
- MA.FA:8-3 Represent data using a dot plot. Use relevant math vocabulary to describe dot plots, including median, mode, range, and outliers
- MA.FA:8-4 Create a histogram given a data set. Analyze the distribution, center, and variability of a histogram
- MA.FA:8-5 Calculate a weighted average of a data set
- MA.FA:8-6 Analyze data presented in a relative frequency histogram