

Chp	Working with Data	Symbol Manipulation	Solving Equations and Inequalities	Ratio and Proportion	Multiple Representations (Equation, table, graph, situation)
1	Students collect, graph, and analyze data to determine if a roller coaster is safe for all riders.	Variables are purposely delayed until Chapter 2.	Work with variables will start in Chapter 2.	An explicit focus on proportion will start in Chapter 2.	Students create situations that would match given graphs. Students also use graphs with coordinate points as a means of problem solving a contextual situations. Students look at some tile patterns and use multiple forms to look at the pattern.
2	Students collect data about a small bag of M&M's to make predictions about a large bag of M&M's using proportional reasoning.	Students explore variables and simplify expressions by combining like terms and representing them on an expression mat.	Students compare expressions to determine which is greater. Students solve equations using algebra tiles and equation mats.	Students solve basic proportional situations through a variety of methods.	This thread is spiraled throughout homework.
3	Students analyze data and use tables, rules, and graphs to make predictions about a variety of patterns including the height of a redwood tree and the amount of a tip.	Students continue to simplify expressions within the process of solving numerous and varied equations.	Students solve equations algebraically (without tiles), evaluate and test the solutions, and examine the meaning of no solution or all solutions.	This thread is spiraled throughout homework.	Students look at a pattern, its table, graph and equation and use a graphing calculator to make predictions about the pattern. Students use rules to create tables and then graphs. Students look at graph errors and what makes a complete graph.
4	Students model a variety of real world situations that require the use of a system of equations.	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.	Students complete the linear web of multiple representations meaning they have all the connections needed to go directly from any one representation to any other (equation, table, graph, pattern/situation) Students also use graphs and tables to solve systems of equations.
5	Students model the real world task of estimating the number of fish in a body of water. Students model the fish and lake in order to collect data by sampling and then analyze and make predictions through the use of proportions.	Students explore algebraic multiplication and factoring through an area model looking at the length and width as a product and the area as a sum. Students also use the distributive property and multiply polynomials.	Students solve equations with multiplication. Students also solve equations with multiple variables.	Students write equations for proportional relationships and then solve the proportions.	This thread is spiraled throughout homework.
6	Students use data from real world situations in culminating problems that bring together the first semester concepts.	This thread is spiraled throughout homework.	Students solve numerous equations via the process of solving systems of equations algebraically.	This thread is spiraled throughout homework.	Students solve systems using tables, graphs or equations and discuss the meaning of the solutions as the points of intersections. Students also understand why the system of parallel lines has no solution and why lines that coincide have infinite solutions.

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7	Students model multiple linear situations and learn to find the trend line to fit the data. Then students use their equations to make predictions.	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.	Students determine the slope of a line as a ratio of the vertical change over the horizontal change	Students define and determine the slope on a graph including parallel and perpendicular slopes. Students show how the slope is represented in the table, graph, equation and the rate of change in the situation.
8	Students use data from a water balloon contest in order to create parabolic graphs and then make predictions.	Students factor quadratic expressions completely.	Students learn to solve equations using the zero product property. Students learn the relationship between no solution and the roots of a quadratic equation.	This thread is spiraled throughout homework.	Students complete the quadratic web meaning they have all the connections needed to go directly from any one representation to any other (equation, table, graph, pattern/situation).
9	Students explore the data from many real world situations using inequalities.	This thread is spiraled throughout homework.	Students solve linear inequalities and represent their answers on a number line.	This thread is spiraled throughout homework.	Students graph two variable inequalities, systems of inequalities, and absolute value functions.
10		Students simplify expressions involving exponents and rational expressions. Student learn how to complete the square.	Students look at multiple methods for solving and discuss the number of solutions for an equation. Students solve equations with fractions. Students solve inequalities with absolute value and quadratic inequalities.	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.
11	Students collect a variety of data about a number of different functions and make conjectures based on their observations.	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.	Students learn how to predict the shape of a graph given its rule. Students come to a solid understanding of intercepts and intersections.
12	Students collect and graph data from a burning candle to make a trend line and determine when the candle will burn out.	Students learn how to add and subtract rational expressions. Students learn factoring shortcuts and the derivation of the quadratic formula.	Students solve complex quadratic equations and inequalities with absolute values closure challenges.	Students develop strategies to solve basic work problems. Students also apply proportional reasoning to solve the Burning Candle challenge.	Students apply multiple representations to analyze and solve several closure challenges.

Chp	Linear Functions	Quadratic Functions	Systems of Equations/Inequalities	Functions beyond linear and quadratic	Problems in Context
1	Students analyze the linear growth in tile patterns and then predict the number of tiles or the figure number for another instance in the pattern.		Students solve a system of equations by guess and check.		Students develop and use the method of guess and check tables for solving contextual problems.
2					Students use problem solving skills such as drawing a picture or making a table to solve proportional situations.
3	Students determine the rule by completing info given as a pattern or a table. Students graph many linear equations by plotting points from a table.		Students solve equations graphically by creating a system of two linear equations and determining the intersection.		Students use graphs, tables, and equations to solve real world problems.
4	Students explore linear situations daily and discuss starting values and growth. Students define $y = mx + b$.	Students explore a quadratic situation in a tile pattern and discuss its growth. Students also look for connections between the graph, table, rule, and pattern for multiple quadratic patterns.	Students solve systems graphically and algebraically.		Students solve contextual problems with linear relationships or systems of linear equations using multiple strategies.
5	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.		Students solve real world proportional situations by writing equations.
6	Students write linear equations from contextual word problems.	This thread is spiraled throughout homework.	Students write systems of equations and use them to solve problems. Students solve systems by using the equal values method, by substitution, by graphing and by elimination and learn when to choose which method.		Students write equations or systems of equations from contextual situations in order to solve problems.

Chp	Linear Functions	Quadratic Functions	Systems of Equations/Inequalities	Functions beyond linear and quadratic	Problems in Context
7	Students determine the slope of a line from the equation. Students use a motion detector and their knowledge of linear equations to create any line. Students write linear equations given a slope and a point or two points.	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.		Students relate slope to the rate of change in real world contexts. Students solve problems using linear equations.
8	This thread is spiraled throughout homework.	Students learn how to find the roots of a quadratic equation, by graphing, factoring, and the quadratic formula.	This thread is spiraled throughout homework.		Students solve contextual quadratic situations.
9	This thread is spiraled throughout homework.	This thread is spiraled throughout homework.	Students solve systems of inequalities by graphing.		Students solve contextual inequalities and systems of inequalities.
10	This thread is spiraled throughout homework.	Students solve quadratic equations by completing the square.	This thread is spiraled throughout homework.	Students explore non-linear functions.	Students write and solve an inequality from an area problem. Students use scientific notation to express large real world values.
11	Students determine the domain and range of linear functions.	Students determine the domain and range of quadratic functions.	This thread is spiraled throughout homework.	Students define functions and relations and determine domain and range of functions. Students look at a wide variety of functions and how the values in an equation make the graph move and change.	Students look at contextual problems to give understanding to intercepts and intersection.
12	Students use what they know about linear functions to find a trend line for data in the Burning Candle challenge.	Students solve challenging quadratic equations (arising from tile patterns) in the closure challenges.	This thread is spiraled throughout homework.	Students analyze a complex function in the closure activities.	Students solve word problems involving rate of work and mixture quantities. Students develop thorough justifications for their answers.