Algebra 1.5 Year-Long

Teacher: Cailyn Olesen & Mindi Sechser

September 2022

Content	Skills	Learning Targets	Assessment	Standards Reference	Resources & Technology
CEQ: • **WHAT PRIOR KNOWLEDGE DO STUDENTS NEED TO BE SUCCESSFUL IN ALGEBRA 1.5?** • **HOW DO WE OPERATE WITH POLYNOMIALS?** • **HOW CAN QUADRATIC (2ND DEGREE) EQUATIONS BE SOLVED?**	**A. Simplification of Expressions** A1. Simplify expressions using the order of operations. A2. Simplify expressions using the distributive property. **B. Single Variable Equations** B1. Solve algebraic equations in one variable. B2. Set up and solve	**Chapters 1-2 Review Variables, Function Patterns, and Graphs** LT1. I can simplify expressions using order of operations. **Rational Numbers** LT2. I can simplify expressions using the distributive property. **Solving Equations** LT3. I can solve two step equations. LT4: I can use the Distributive Property when combining like terms. LT5: I can use the Distributive Property when solving equations LT6: I can solve	**A. Simplification of Expressions** **B. Single Variable Equations** **CSA= A1-A2, B1-B2,** **Algebra 1 Review Chapters 1-2** **LT1:** **LT2:** **LT3:** **LT4:**	MN STATE Standard 7.2.3.3	

Chapters 1-7 were completed in Algebra 1. However, these chapters will be revisited for Algebra 1.5 Year-Long students so they can better grasp the Algebra information. **A. Simplification of Expressions** A1. Order of operations A2. Distributive property **B. Single Variable Equations** B1. Multi-step equations B2. Equations with variables on both sides B3. Ratios and proportions B4: Distance, Rate, Time Relationships	ratios and proportions. B3: Set up and solve distance, rate and time relationships.	equations with variables on both sides. LT7: I can set up and solve ratios and proportions. LT8: I can define a variable in terms of another variable. LT9: I can model distance-rate-time problems	**LT5:** **LT6:** **LT7:** **LT8:** **LT9:**		

September

Content	Skills	Learning Targets	Assessment	State Standards	Resources & Technology
CEQ: • **WHAT PRIOR KNOWLEDGE DO STUDENTS NEED TO BE SUCCESSFUL IN ALGEBRA 1.5?** • **HOW DO WE OPERATE WITH POLYNOMIALS?** • **HOW CAN QUADRATIC (2ND DEGREE) EQUATIONS**	**A. Solutions of Inequalities** A1. Solve inequalities with variables on one or both sides of equations. A2. Graph inequalities. A3. Solve and graph compound inequalities with "and" or "or".	**Chapter 3 Review** **Solving Inequalities** LT1: I can identify solutions of inequalities. LT2: I can graph and write inequalities. LT3: I can use addition and subtraction to solve inequalities. LT4: I can use multiplication and division to solve inequalities. LT5: I can solve multi-step inequalities with variables on one side. LT 6: I can solve multi-step inequalities with variables on both sides	**A. Solutions of Inequalities** **CSA= Chapter 3 Test** **LT1:** **LT2:** **LT3:** **LT4:** **LT5:** **LT6:** **LT7:** **LT8:**	MN STATE Standard 9.2.4.6	

BE SOLVED? **A. Solutions of Inequalities** A1. Multi-step inequalities A2. Graphs of inequalities A3. Compound inequalities		LT7: I can solve and graph inequalities containing AND. LT8: I can solve and graph inequalities containing OR.			

September

Content	Skills	Learning Targets	Assessment	State Standards	Resources & Technology
CEQ: • **WHAT PRIOR KNOWLEDGE DO STUDENTS NEED TO BE SUCCESSFUL IN ALGEBRA 1.5?** • Chapters 1-7 were completed in Algebra 1. However, all main concepts will be reviewed during the first few weeks of the Algebra 1.5 course. **A. Function Rules** A1. Model functions using rules	**A. Function Rules** A1. Model functions using rules A2: Create a table of values from the function rule. A3: Construct a graph of a function rules.	**Chapter 4** LT1: I can model functions using rules, tables, and graphs.	**A. Simplification of Expressions** **B. Single Variable Equations** **C. Solutions of Inequalities** **CSA= Chapter 4 Test** **LT1:** **LT2:**	MN STATE Standard 9.2.1.1 9.2.1.2 9.2.1.3 9.2.2.6 9.2.3.1 8.2.2.1	

A2: Function Rule table of values. A3: Function Rule Graphs.			**LT3:** **LT4:** **LT5:** **LT6:** **LT7:** **LT8:**		

October/November

Content	Skills	Learning Targets	Assessment	State Standards	Resources & Technology
CEQ: • **WHAT PRIOR KNOWLEDGE DO STUDENTS NEED TO BE SUCCESSFUL IN ALGEBRA 1.5?** • **HOW DO WE OPERATE WITH POLYNOMIALS?** • **HOW CAN QUADRATIC (2ND DEGREE) EQUATIONS BE SOLVED?** Chapters 1-7 were completed in Algebra	**A. Linear Equations** A1. Calculate slope using points, line, or table. A2. Write equation of line in slope-intercept form. A3. Write equation of line in standard form. A4. Write equation of line in point-slope form. **B. Systems of Equations** B1. Solve a system of equations by graphing. B2. Solve a system of equations using substitution.	**Chapter 5 Review Linear Equations and Their Graphs** LT1. I can calculate slope using two points, a line, or a table of values. LT2. I can write a linear equation of a line in slope-intercept form. LT3. I can write a linear equation of a line in standard form. LT4. I can write a linear equation of line in point-slope form. **Chapter 6 Review Systems of Equations and Inequalities** LT1. I can identify is a point is a solution to a system.	**A. Linear Equations** **CSA= A1-A4** **Chapter 5 Test** **LT1:** **LT2:** **LT3:** **LT4:** **B. Systems of Equations** **CSA= B1-B3** **Chapter 6 Test** **LT1:** **LT2:** **LT3:** **LT4:**	MN STATE Standard 9.2.1.8 8.2.1.3 8.2.2.2 8.2.2.3	

1. However, all main concepts will be reviewed during the first few weeks of the Algebra 1.5 course. **A. Linear Equations** A1. Slope A2. Slope-intercept form A3. Standard form A4. Point-slope form **B. Systems of Equations** B1. Solving by graphing B2. Solving by substitution B3. Solving by elimination	B3. Solve a system of equation using elimination.	LT2. I can solve a system of linear equations by graphing. LT3. I can solve a system of linear equations using substitution. LT4. I can solve a system of linear equations using elimination.			

November/December

Content	Skills	Learning Targets	Assessment	State Standards	Resources & Technology
CEQ: • **WHAT PRIOR KNOWLEDGE DO STUDENTS NEED TO BE SUCCESSFUL IN ALGEBRA 1.5?** • **HOW DO WE OPERATE WITH POLYNOMIALS?**	**A. Exponents** A1. Simplify expressions with positive, negative, and/or zero exponents. A2. Multiply powers with the same base. A3. Raise a power to a power and a product to a power. A4. Divide powers with the same base. A5. Raise a quotient to a power. A6. Write equations to model exponential	**Chapter 7 Review Exponents and Exponential Functions** LT1. I can simplify expressions with positive, negative, and zero exponents. LT2. I can multiply powers with the same base. LT3. I can simplify a power to a power and a product to a power. LT4. I can divide	**F. Exponents** **CSA= A1-A6** **Chapter 7 Test** **LT1:** **LT2:** **LT3:** **LT4:** **LT5:**	MN STATE Standard 9.2.2.2	

• **HOW CAN QUADRATIC (2ND DEGREE) EQUATIONS BE SOLVED?** Chapters 1-7 were completed in Algebra 1. However, all main concepts will be reviewed during the first few weeks of the Algebra 1.5 course. **A. Exponents** A1. Multiplication of expressions containing exponents A2. Division of expressions containing exponents A3. Exponential growth and decay	growth and decay situations.	powers with the same base. LT5. I can raise a quotient to a power.			

December - January

Content	Skills	Learning Targets	Assessment	Standards Reference	Resources & Technology
UEQ: *•How are polynomials categorized by degree and by number of terms?* *• How are polynomials added, subtracted, and multiplied?* *• How are polynomials factored?* **A. Operations with Polynomials** A1. Classification of polynomials A2. Addition and subtraction of polynomials A3. Multiplication of polynomials	**A. Operations with Polynomials** A1. Classify polynomials by degree and by number of terms. A2. Add and subtract polynomials by combining like terms. A3. Multiply polynomials of various degree and with different numbers of terms.	**Polynomials and Factoring** LT1. I can write a polynomial in standard form. LT2. I can classify polynomials by degree and by number of terms. LT3. I can add and subtract polynomials by combining like terms. LT4. I can multiply polynomials by distributing. LT5. I can multiply polynomials by using FOIL. LT6. I can factor out a Greatest Common Factor (GCF). LT7. I can factor a	**A. Operations with Polynomials** **B. Factors of a Polynomial**	MN STATE Standard 9.2.3.3	

B. Factors of a Polynomial B1. Factorization of a polynomial	**B. Factors of a Polynomial** B1. Factor a monomial from a polynomial (GCF). B2. Factor a difference of squares. B3. Factor a trinomial into two binomials. B4. Factor a polynomial with four or more terms by grouping.	difference of squares. LT8. I can factor a trinomial with a coefficient when a =1. LT9. I can factor a trinomial with a leading coefficient not equal to 1. LT10. I can factor a polynomial with four terms by grouping.	**CSA= A1-A3 and B1-B4 Chapter 8 Test** **LT1:** **LT2:** **LT3:** **LT4:** **LT5:** **LT6:** **LT7:** **LT8:** **LT9:** **LT10:**		

January

Content	Skills	Learning Targets	Assessment	State Standards	Resources & Technology
UEQ: • *How are quadratic equations graphed?* • *How can quadratic equations be solved?* • *How is data best*		**Quadratic Equations and Functions** LT1. I can identify the vertex of parabola. LT2. I can identify an axis of symmetry of parabola. LT3. I can graph a	**A. Quadratic Function (Parabola)**	MN STATE Standard 9.2.1.5 9.2.1.6 9.2.2.1	

modeled using linear, exponential, or quadratic equations? **A. Quadratic Function (Parabola)** A1. Identification of vertex of parabola A2. Identification of axis of symmetry of parabola A3. Graph of quadratic function **B. Quadratic Equations** B1. Use of square roots to solve B2. Use of graphs to solve B3. Use of factoring to solve B4. Use of quadratic formula to solve B5. Interpretation of discriminant	**A. Quadratic Function (Parabola)** A1. Identify vertex of parabola. A2. Identify axis of symmetry of parabola. A3. Graph quadratic function with at least five points of accuracy. **B. Quadratic Equations** B1. Solve quadratic equation by using square roots. B2. Solve quadratic equation by graphing the corresponding function. B3. Solve quadratic equation by factoring and using zero-product property. B4. Solve quadratic equation by using the quadratic formula. B5. Interpret what the discriminant reveals	quadratic function with at least five points of accuracy. LT4. I can graph a quadratic inequality with at least five points of accuracy. LT5. I can recognize how a graph is transformed based on the function. LT6. I can solve a quadratic equation by using square roots. LT7. I can solve a quadratic equation by graphing the corresponding function. LT8. I can solve a quadratic equation by factoring and using zero-product property. LT9. I can solve a quadratic equation by using the quadratic formula. LT10. I can interpret what the discriminant reveals about the number of solutions. LT11. I can determine the type	**B. Quadratic Equations** **C. Models for Data** **CSA= A1-A3, B1-B6, C1-C2 Chapter 9 Test** **LT1:** **LT2:** **LT3:** **LT4:** **LT5:** **LT6:** **LT7:** **LT8:** **LT9:** **LT10:** **LT11:**	9.2.3.2 9.2.3.4	

C. Models for Data C1. Graph of data / Appropriate model C2. Equation to model data	about the number of solutions. **C. Models for Data** C1. Choose appropriate model by graphing the data. C2. Write equation to model the data.	of graph represented based on a table of values.			

February

Content	Skills	Learning Targets	Assessment	State Standards	Resources & Technology
UEQ: **How do we simplify and combine radicals?* **How do we solve radical equations?* **How do we graph radical functions?* **How can we use right triangle trigonometry?* **A. Radical Expressions and Equations**	**A. Radical Expressions and Equations** A1. Simplify radicals involving products and quotients and by rationalizing denominators. A2. Operate with radical expressions by simplifying sums, differences, products, and quotients. A3. Solve equations containing radicals	**Radical Expressions and Equations** LT1. I can simplify radicals involving products and quotients and by rationalizing denominators. LT2. I can simplify radical expressions by using sums and differences. LT3. I can simplify radical expressions by using distributive property and/or FOIL. LT4. I can solve	**CSA= Chapter 10 Test A1-A6** **LT1:** **LT2:** **LT3:** **LT4:** **LT5:** **LT6:** **LT7:** **LT8:** **LT9:**	MN STATE Standard 9.2.2.6 9.2.3.1 9.2.3.4 9.2.4.7	

A1. Simplification radicals A2. Operations with radical expressions A3. Solving of radical equations A4. Graphing of square root functions A5. Pythagorean Theorem A6. Trigonometric ratios	and eliminate extraneous solutions. A4. Graph square root functions and translate graphs of square root functions. A5. Use Pythagorean Theorem to determine missing side length. A6. Find trigonometric ratios and use angles of elevation and depression.	equations containing radicals and eliminate extraneous solutions. LT5. I can rationalize the denominator of a radical by using the conjugate. LT 6. I can graph square root functions and translate graphs of square root functions. LT7. I can use the Pythagorean Theorem to determine missing side length. LT8. I can find trigonometric ratios. LT9. I can solve angles of elevation and depression using trigonometric ratios.			

March - April

Content	Skills	Learning Targets	Assessment	Standards Reference	Resources & Technology
UEQ: **How do we graph rational functions?* **How do we simplify*	**A. Rational Expressions and Functions**	**Rational Expressions and Functions** LT1. I can graph rational functions.	**CSA= Chapter 11 Quiz A1-A4** **LT1:**	MN STATE Standard 9.2.3.1	

rational functions? **How do we solve radical equations?* **When do we use the fundamental counting principle?* **How do we find permutations and combinations?* **How do we solve direct and inverse variation equations?* **A. Rational Expressions and Functions** A1. Graphing of rational functions A2. Simplifying of rational expressions A3. Multiplication & division of rational expressions A4. Division of polynomials A5. Addition & subtraction of rational expressions A6. Solving of rational equations A7: Write and solve direct and inverse	A1. Graph rational functions and identify types of functions. A2. Simplify rational expressions. A3. Multiply & divide rational expressions. A4. Divide polynomials by a monomial. A5. Add & subtract rational expressions with like and unlike denominators. A6. Solve rational equations including proportions. A7: Solve direct and inverse variation equations.	LT2. I can simplify rational expressions. LT3. I can multiply & divide rational expressions. LT4. I can divide polynomials by a monomial. LT5. I can divide polynomials by using long division. LT6. I can add & subtract rational expressions using common denominators. LT7. I can solve rational equations including proportions. LT8. I can solve direct and inverse variation equations.	**LT2:** **LT3:** **LT4:** **LT5:** **LT6:** **LT7:** **LT8:** **CSA= Chapter 11 Quiz A5-A6** **LT1:** **LT2:** **LT3:** **LT4:** **LT5:** **LT6:** **LT7:** **LT8:** **CSA= Chapter 11 Quiz A7** **LT1:** **LT2:** **LT3:** **LT4:** **LT5:** **LT6:** **LT7:** **LT8:**	7.2.1.1	

variation equations.					

May

Content	Skills	Learning Targets	Assessment	Standards Reference	Resources & Technology
*UEQ: *What are some ways to display and interpret data? *How are probability and odds calculated? *How do we find permutations and combinations? **A. Probability and Odds** A1. Calculation of Probability A2. Calculation of Odds **B. Permutation and Combinations**	**A. Probability and Odds** A1. Calculate experimental probability of event occurring. A2. Calculate theoretical probability of event occurring. A3. Calculate the probability of compound events - both independent and dependent. **B. Permutation and**	**Probability** LT1. I can calculate experimental probability of event occurring. LT2. I can calculate theoretical probability of event occurring. LT3. I can find the probability of independent and dependent events. LT4. I can find permutations. LT5. I can find combinations. LT6. I can use the counting method. LT7. I can find the probability of mutually exclusive	**a. Probability and Odds** **B. Permutation and Combinations** **CSA= A1-B3, B1-B3 Probability (Ch12) Test** **LT1:** **LT2:** **LT3:** **LT4:** **LT5:**	MN STATE Standard Probability: 9.4.3.2 9.4.3.8 Statistics: 9.4.1.1 9.4.1.2	

B1. Counting methods and permutations B2. Combinations **C. Displays and Interpretation of Data** **C1. Frequency Tables** **C2. Line Plots** **C3. Bar Graphs & Histograms** **C4. Line Graphs** **C5. Circle Graphs** **C6. Measures of Central Tendency** **C7. Stem-and-Leaf Plots** **C8. Box-and-Whisker Plots** **C9. Scatterplots** **C10. Line of Best Fit**	**Combinations** B1. Use counting methods including the fundamental counting principle. B2. Find permutations. B3. Find combinations. **C. Displays and Interpretation of Data** **C1. Construct and interpret frequency tables.** **C2. Construct and interpret line plots.** **C3. Construct and interpret bar graphs and histograms.** **C4. Construct and interpret line graphs.** **C5. Construct and interpret circle**	and overlapping events. LT 8. I can calculate the odds of an event occurring. **Statistics** LT1. I can construct and interpret frequency tables. LT2. I can construct and interpret line plots. LT3. I can construct and interpret bar graphs and histograms. LT4. I can construct and interpret line graphs. LT5. I can construct	**LT6:** **LT7:** **LT8:** **C. Displays and Interpretation of Data** **CSA= C1-C10 Statistics (Ch 12) Test** **LT1:** **LT2:** **LT3:** **LT4:** **LT5:** **LT6:** **LT7:** **LT8:** **LT9:** **LT10:**		

C1. Frequency Tables C2. Line Plots C3. Bar Graphs & Histograms C4. Line Graphs C5. Circle Graphs C6. Measures of Central Tendency C7. Stem-and-Leaf Plots C8. Box-and-Whisker Plots C9. Scatterplots C10. Line of Best Fit	**graphs.** **C6. Identify measures of central tendency - mean, median, mode.** **C7. Construct and interpret stem-and-leaf plots.** **C8. Construct and interpret box-and-whisker plots.** **C9. Construct and interpret scatterplots.** **C10. Find the line of best fit.**	and interpret circle graphs. LT6. I can identify mean, median, mode. LT7. I can construct and interpret stem-and-leaf plots. LT8. I can construct and interpret box-and-whisker plots. LT9. I can construct and interpret scatterplots. LT10. I can find the line of best fit.	**If time, statistics project.**		