Lavinia RISE

COMMON CORE MATHEMATICS STANDARDS

Rising 1st

COUNTING AND CARDINALITY

- K.CC.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

OPERATIONS AND ALGEBRAIC THINKING

- K.OA.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
- K.OA.2: Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

NUMBER AND OPERATIONS IN BASE TEN

- K.NBT.1: Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

COMMON CORE MATHEMATICS STANDARDS

Lavinia RISE

Rising 2nd

OPERATIONS AND ALGEBRAIC THINKING

- 1.OA.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

NUMBER AND OPERATIONS IN BASE TEN

- 1.NBT.4: Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
- 1.NBT.6: Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10- 90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

COMMON CORE MATHEMATICS STANDARDS

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Rising 3rd

OPERATIONS AND ALGEBRAIC THINKING

- 2.OA.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

NUMBER AND OPERATIONS IN BASE TEN

- 2.NBT.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- 2.NBT.7: Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
- 2.NBT.9: Explain why addition and subtraction strategies work, using place value and the properties of operations.

COMMON CORE MATHEMATICS STANDARDS

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Rising 4th

OPERATIONS AND ALGEBRAIC THINKING

- 3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- 3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
- 3.OA.8: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

NUMBER AND OPERATIONS IN BASE TEN

- 3.NBT.2: Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

COMMON CORE MATHEMATICS STANDARDS

Lavinia RISE

Rising 5th

OPERATIONS AND ALGEBRAIC THINKING

- 4.OA.3: Solve multistep word problems posed with whole numbers and having whole- number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

NUMBER AND OPERATIONS IN BASE TEN

- 4.NBT.4: Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- 4.NBT.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- 4.NBT.6: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

COMMON CORE MATHEMATICS STANDARDS

Lavinia RISE

Rising 6th

NUMBERS AND OPERATIONS IN BASE TEN

- 5.NBT.7: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

NUMBER AND OPERATIONS — FRACTIONS

- 5.NF.3: Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
- 5.NF.6: Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
- 5.NF.7: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

COMMON CORE MATHEMATICS STANDARDS

Lavinia RISE

Rising 7th

RATIOS AND PROPORTIONAL RELATIONSHIPS

- 6.RP.2: Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship.
- 6.RP.3b: Solve unit rate problems including those involving unit pricing and constant speed.
- 6.RP.3c: Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

THE NUMBER SYSTEM

- 6.NS.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

COMMON CORE MATHEMATICS STANDARDS

Lavinia RISE

Rising 8th

RATIOS AND PROPORTIONAL RELATIONSHIPS

- 6.NS.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

THE NUMBER SYSTEM

- 7.NS.1: Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

EXPRESSIONS, EQUATIONS, AND INEQUALITIES

- 7.EE.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

COMMON CORE MATHEMATICS STANDARDS

Lavinia RISE

Rising 9th

EXPRESSIONS, EQUATIONS, AND INEQUALITIES

- 8.EE.4: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
- 8.EE.5: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
- 8.EE.8: Analyze and solve pairs of simultaneous linear equations.

FUNCTIONS

- 8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

COMMON CORE MATHEMATICS STANDARDS

Lavinia RISE

Rising 10th

LINEAR FUNCTIONS AND EQUATIONS

- CCSS.Math.Content.HSA.CED.A.1: Create equations and inequalities in one variable and use them to solve problems.
- CCSS.Math.Content.HSA.CED.A.2: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
- CCSS.Math.Content.HSA.REI.B.3: Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
- CCSS.Math.Content.HSF.LE.A.2: Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

SYSTEMS OF LINEAR EQUATIONS

- CCSS.Math.Content.HSA.REI.C.6: Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

EXPONENTIAL FUNCTIONS

- CCSS.Math.Content.HSF.LE.A.1: Distinguish between situations that can be modeled with linear functions and with exponential functions.
- CCSS.Math.Content.HSF.LE.A.1.a: Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.
- CCSS.Math.Content.HSF.LE.A.1.b: Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.

COMMON CORE MATHEMATICS STANDARDS

Lavinia RISE

Rising 10th (continued)

EXPONENTIAL FUNCTIONS

- CCSS.Math.Content.HSF.LE.A.1.c: Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
- CCSS.Math.Content.HSF.LE.A.2: Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).
- CCSS.Math.Content.HSF.LE.B.5: Interpret the parameters in a linear or exponential function in terms of a context.

QUADRATIC FUNCTIONS

- CCSS.Math.Content.HSA.REI.B.4: Solve quadratic equations in one variable.

SYNTHESIS: PROBLEM SOLVING

- (All above standards)
- CCSS.Math.Content.HSA.REI.C.7: Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line y = -3x and the circle x2 + y2 = 3.