

Algebra 1 Semester 1

Week (dates or numbers)	Standards (NVACS) Both academic and practice standards/Essential Skills/Objectives	<u>Lesson (Using Illustrative Mathematics Curriculum)</u>	Activities	Assessments
Week 1	<p>-HSS.ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).</p> <p>-HSS.ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.</p> <p>-HSS.ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</p>	<p>Alg1.1.2, Alg1.1.9 <i>Data Representations and Mystery Computations</i></p>	<ol style="list-style-type: none"> 1. Daily Warm-ups 2. Student Lecture Notes in class throughout the week (M-Th) 3. Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> 1. Weekly Quiz/Cool Down Thursday (15 minutes before class ends) 2. Friday Check-Ins (Check for understanding question taken from weekly notes.)
Week 2	<p>-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.</p> <p>-HSA.CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.</p> <p>-HSA.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law ($V = IR$) to highlight resistance R.</p>	<p>Alg1.2.3, Alg1.2.9 <i>Writing Equations to Model Relationships (p2) & Which Variable to Solve for? (p2)</i></p>	<ol style="list-style-type: none"> 1. Daily Warm-ups 2. Student Lecture Notes in class throughout the week (M-Th) 3. Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> 1. Weekly Quiz/Cool Down Thursday (15 minutes before class ends) 2. Friday Check-Ins (Check for understanding question taken from weekly notes.)
Week 3	<p>-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.</p>	<p>Alg1.2.13 , Alg1.2.14 <i>Solving Systems by Substitution and Elimination</i></p>	<ol style="list-style-type: none"> 1. Daily Warm-ups 2. Student Lecture Notes in class throughout the week (M-Th) 3. Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> 1. Weekly Quiz/Cool Down Thursday (15 minutes before class ends) 2. Friday Check-Ins (Check for understanding question taken from weekly notes.)

<p>Week 4</p>	<p>-HSA.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions and simple rational and exponential functions.</p> <p>-HSA.CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.</p> <p>-HSS.ID.B.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.</p>	<p>Alg1.2.20, Alg1.3.2 <i>Writing and Solving Inequalities in One Variable & Relative Frequency Tables</i></p>	<ol style="list-style-type: none"> 1. Daily Warm-ups 2. Student Lecture Notes in class throughout the week (M-Th) 3. Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> 1. Weekly Quiz/Cool Down Thursday (15 minutes before class ends) 2. Friday Check-Ins (Check for understanding question taken from weekly notes.)
<p>Week 5</p>	<p>-HSA.REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.</p> <p>-HSF.IF.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*</p> <p>-HSF.IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.*</p> <p>-HSF.IF.C.7.a Graph linear and quadratic functions and show intercepts, maxima, and minima.</p>	<p>Alg1.4.5, Alg1.4.9 <i>Using Function Notation to Describe Rules and Comparing Graphs</i></p>	<ol style="list-style-type: none"> 1. Daily Warm-ups 2. Student Lecture Notes in class throughout the week (M-Th) 3. Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> 1. Weekly Quiz/Cool Down Thursday (15 minutes before class ends) 2. Friday Check-Ins (Check for understanding question taken from weekly notes.)
<p>Week 6</p>	<p>-HSF.BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.</p>	<p>Alg1.4.13, Alg1.4.14 <i>Absolute Value Functions</i></p>	<ol style="list-style-type: none"> 1. Daily Warm-ups 2. Student Lecture Notes in class throughout the week (M-Th) 3. Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> 1. Weekly Quiz/Cool Down Thursday (15 minutes before class ends) 2. Friday Check-Ins (Check for understanding question taken from weekly notes.)
<p>Week 7</p>	<p>-HSF.BF.A.1 Write a function that describes a relationship between two quantities.*</p> <p>-HSF.BF.A.1.a Determine an explicit expression, a recursive process, or steps for calculation from a context.</p>	<p>Alg1.4.18 <i>Using Functions to Model Battery Power</i></p>	<ol style="list-style-type: none"> 1. Daily Warm-ups 2. Student Lecture Notes in class throughout the week (M-Th) 3. Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> 1. Weekly Quiz/Cool Down Thursday (15 minutes before class ends) 2. Friday Check-Ins (Check for understanding question taken from weekly notes.)

Week 8	<p>-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.</p> <p>-HSA.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.*</p> <p>-HSA.SSE.A.1.a Interpret parts of an expression, such as terms, factors, and coefficients.</p> <p>-HSF.LE.B.5 Interpret the parameters in a linear or exponential function in terms of a context.</p>	Alg1.5.4 <i>Understanding Decay</i>	<ol style="list-style-type: none"> Daily Warm-ups Student Lecture Notes in class throughout the week (M-Th) Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> Weekly Quiz/Cool Down Thursday (15 minutes before class ends) Friday Check-Ins (Check for understanding question taken from weekly notes.)
Week 9	Midterm/Final Review		<ol style="list-style-type: none"> Daily Warm Up Monday H/W Review Tuesday/Wednesday Exam Review 	<ol style="list-style-type: none"> Exam ACT/Brilliant Practice

Algebra 1 Semester 2

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Week 1	<p>-HSF.IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*</p> <p>-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).</p> <p>-HSF.IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.*</p> <p>HSF.IF.C.7.a Graph linear and quadratic functions and show intercepts, maxima, and minima.</p>	Alg1.5.8, Alg1.5.11 <i>Exponential Situations as Functions and Modeling Exponential Behavior</i>	<ol style="list-style-type: none"> Daily Warm-ups Student Lecture Notes in class throughout the week (M-Th) Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> Weekly Quiz/Cool Down Thursday (15 minutes before class ends) Friday Check-Ins (Check for understanding question taken from weekly notes.)
Week 2	<p>-HSF.IF.C.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.</p> <p>-HSF.IF.C.8.a Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.</p> <p>-HSF.IF.C.8.b Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.</p>	Alg1.5.18 <i>Expressed in Different Ways</i>	<ol style="list-style-type: none"> Daily Warm-ups Student Lecture Notes in class throughout the week (M-Th) Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> Weekly Quiz/Cool Down Thursday (15 minutes before class ends) Friday Check-Ins (Check for understanding question taken from weekly notes.)

<p>Week 3</p>	<p>-HSF.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions. -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. -HSF.LE.A.1.b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. -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.</p>	<p>Alg1.5.20, Alg1.5.21 <i>Changes over Equal Intervals & Predicting Populations</i></p>	<ol style="list-style-type: none"> Daily Warm-ups Student Lecture Notes in class throughout the week (M-Th) Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> Weekly Quiz/Cool Down Thursday (15 minutes before class ends) Friday Check-Ins (Check for understanding question taken from weekly notes.)
<p>Week 4</p>	<p>-HSA.SSE.A.2 Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$. -HSA.SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.</p>	<p>Alg1.6.9, Alg1.6.10 <i>Standard Form and Graphs of Functions in Standard and Factored Forms</i></p>	<ol style="list-style-type: none"> Daily Warm-ups Student Lecture Notes in class throughout the week (M-Th) Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> Weekly Quiz/Cool Down Thursday (15 minutes before class ends) Friday Check-Ins (Check for understanding question taken from weekly notes.)
<p>Week 5</p>	<p>-HSA.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</p>	<p>Alg1.7.4, <i>Solving Quadratic Equations with the Zero Product Property</i></p>	<ol style="list-style-type: none"> Daily Warm-ups Student Lecture Notes in class throughout the week (M-Th) Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> Weekly Quiz/Cool Down Thursday (15 minutes before class ends) Friday Check-Ins (Check for understanding question taken from weekly notes.)
<p>Week 6</p>	<p>-HSA.REI.B.4 Solve quadratic equations in one variable. -HSA.REI.B.4.a Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. -HSA.REI.B.4.b Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.</p>	<p>Alg1.7.5, Alg1.7.7 <i>How Many Solutions and Rewriting Quadratic Expressions in Factored Form</i></p>	<ol style="list-style-type: none"> Daily Warm-ups Student Lecture Notes in class throughout the week (M-Th) Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> Weekly Quiz/Cool Down Thursday (15 minutes before class ends) Friday Check-Ins (Check for understanding question taken from weekly notes.)
<p>Week 7</p>	<p>HSA.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions and simple rational and exponential functions. HSF.IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.* -HSA.SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.*</p>	<p>Alg1.7.17, Alg1.7.22 <i>Applying the Quadratic Formula and Rewriting in Vertex Form</i></p>	<ol style="list-style-type: none"> Daily Warm-ups Student Lecture Notes in class throughout the week (M-Th) Extra Practice/Homework assigned on Monday, turned in on Thursday prior to quiz/cool down and reviewed on following Monday 	<ol style="list-style-type: none"> Weekly Quiz/Cool Down Thursday (15 minutes before class ends) Friday Check-Ins (Check for understanding question taken from weekly notes.)

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