

Common Core Algebra
2-year sequence - Year I
Grades 9–10

Major about 70%
Supporting about 20%
Additional about 10%

<u>Month</u>	<u>Content</u>	<u>Concepts & Skills with Mathematics Common Core Standards</u>	<u>Major Assessments</u>	<u>ELA Common Core</u>
September (1.5 weeks)	Pretest on 8 th Grade Material Hit Weak Areas necessary for Algebra	Exponent Rules Solving Equations Scientific Notation Scatter Plots (& related terms) Bivariate Data/Correlation Irrational vs Rational Linear (slope, eqs, rate of chg, $y = mx + b$) Isolating a single variable Linear systems (alg/grph) Function rule ($y = f(x)$)		**Full standard description at the bottom of file**
September (2 weeks)	Equations & Expressions	Order of Operations & Properties (A-REI.1) → Commutative → Associative → Distribution → Identify Identical Quantities → Multiplicative Property of Zero → Multiplicative Inverse → Additive Inverse → Additive Identity The difference b/w expressions & equations (A-REI.1) True/False equations (A-CED.3) Substituting values into expressions (A-CED.3) Solving equations (A-CED.4; A-REI.1, 3) → One-step → Two-step → Multi-step → Variable on Both sides → Distribution → Combine like terms		CCR-W.1 <i>Writing arguments to justify your solution.</i> SL.1d <i>Agree or disagree with the solution provided.</i> RST.3 <i>Solving multi-step problems.</i> RST.4 <i>Determine the meaning of symbols, key terms, in word problems.</i>

October (2 weeks)	Equations & Expressions (con't)	Solving equations (A-CED.4; A-REI.1, 3) <ul style="list-style-type: none"> ➔ One-step ➔ Two-step ➔ Multi-step ➔ Variable on Both sides ➔ Distribution ➔ Combine like terms ➔ Include fractions and decimals 		WHST.2f <i>Writing concluding statements.</i>
October (2 weeks)	Equations & Expressions (con't)	Multiple variables (A-CED.2, 4) <ul style="list-style-type: none"> ➔ Isolate a single variable Algebraic Proof (A-REI.1) Word Problems (A-CED.1, 2) Writing Equations/Expressions (A-CED.1; A-REI.3) Exponential Rules (review) (8.EE.1) Absolute Value Equations (A-REI.1, 3)		RST.3 <i>Solving multi-step problems.</i> CCR-W.1 <i>Writing arguments to justify your solution.</i>
November (2 weeks)	Inequalities	Symbols (review) True/False Inequalities (A-CED.3; A-REI.3) Solving Inequalities (A-REI.3) <ul style="list-style-type: none"> ➔ One-step ➔ Two-step ➔ Multi-step ➔ Variables on both sides ➔ Distributive ➔ Combine like terms ➔ Dividing and multiplying by a negative ➔ Graphing on a number line ➔ Single solutions Rearranging order ($2 < x$ to $x > 2$) (A-CED.4)		RST.3 <i>Solving multi-step problems.</i> RST.4 <i>Determine the meaning of symbols, key terms, in word problems.</i> WHST.2f <i>Writing concluding statements.</i>

November (1.5 weeks)	Inequalities (con't)	Algebraic Proofs (A-REI.3) Word Problems (A-CED.1) ➔ Writing inequalities		RST.3 <i>Solving multi-step problems.</i>
December (3 weeks)	Inequalities (con't)	Solving 'and'/'or' inequalities (A-CED.3; A-REI.3) Graphing 'and'/'or' inequalities (A-CED.3; A-REI.3) Solving absolute value inequalities (A-CED.3; A-REI.3) Absolute value with 'and'/'or' (A-CED.3; A-REI.3) Graphing absolute value 'and'/'or' (A-CED.3; A-REI.3)		RST.3 <i>Solving multi-step problems.</i> RST.5 <i>Building on prior knowledge</i>
January (1.5 weeks)	Polynomials	Identify Monomials, Binomials, Trinomials (A-SSE.1) Degree (A-SSE.1) Standard Form (A-SSE.1) Adding/Subtracting (A-APR.1) ➔ Horizontal/Vertical Methods		RST.4 <i>Determine meaning of symbols.</i>
January (2.5 weeks)	Polynomials (con't)	Exponent to Exponent (review) (8.EE.1) Multiplying (A-REI.1) ➔ FOIL ➔ Box method/area model ➔ 2+ terms with Distribution GCF (A-SSE.2) ➔ Numbers ➔ Variables ➔ Combination		RST.4 <i>Determine meaning of symbols.</i>

February (2 weeks)	Polynomials (con't)	Rational vs Irrational (N-RN.3) Radical Rules (N-RN.3) → Simplest radical form → Adding → Subtracting → Multiplying		RST.3 <i>Multi-step problems</i>
February (1 week)	Introduction to Functions Part I *Linear *Quadratic *Exponential *Absolute Value *Piecewise Linear	Identifying different functions (N-Q.1, 2, 3; F-IF.7, 9) → Use graphs w/intervals (F-IF.5; F-LE.3, 5) → Using tables (F-LE.2, 3; A-REI.10) → Equations (F-LE.1) → Function rule (F-IF.1) - Vertical line test - Horizontal line test		W.11d <i>Writing stories based on graphs.</i>
March (3 weeks) *depending on where Spring Break falls*	Introduction to Functions Part I (con't)	Interpret (interval notation) (N-Q.1, 2, 3; F-IF.4; F-LE.5) → Increasing → Decreasing → Constant Stories (N-Q.1, 2, 3; F-IF.5) Graphing (N-Q.1, 2, 3; F-IF.4, 5; F-LE.1, 3) → Given tables (appropriate scales for graphing) (F-IF.9; A-REI.10) → Filling in tables (F-IF.1; F-LE.2; A-REI.10) → One-to-one (F-IF.1) → Domain/Range (F-IF.1) → Intercepts (F-IF.4) → Using a given interval (F-IF.4) Graphing and writing eqs using word problems (N-Q.1, 2, 3)		CCR-R.4 <i>Interpret words and phrases in mathematics.</i> W.11d <i>Writing stories based on graphs.</i> RST.4 <i>Determine meaning of symbols.</i>

April (2 weeks)	Introduction to Functions Part I (con't)	$y = f(x)$ and coordinates $(x, f(x))$ (F-IF.1, 2) Plug in values ex. $f(2) = ?$ (F-IF.1, 2) Sequences (F-IF.3; F-LE.2) ➔ Arithmetic ➔ Geometric ➔ Recursive – $f(2) = x + 1$ solve: $f(x) + f(x+1) + f(x + 2)$		RST.4 <i>Determine meaning of symbols.</i>
April (2 weeks)	Linear Functions	Slope (using graphs and pts.) (F-IF.5; F-LE.3) Rate of Change (F-IF.6) $y = mx + b$ (F-BF.1; F-IF.9; F-IF.4; A-CED.2) ➔ what is m? what is b? (S-ID.7) ➔ solving for y (A-CED.4) ➔ Graphing from equations (A-CED.2; A-REI.10; F-IF.7) ➔ Using the calculator ➔ Write an equation from a given graph and/or table (F-LE.2, 5; A-CED.1, 2; F-IF.1)		RST.4 <i>Determine meaning of symbols.</i>

May (2 weeks)	Linear Functions (con't)	<p>Writing Equations (F-BF.1)</p> <ul style="list-style-type: none"> ➔ Given 2 points (F-IF.5) ➔ Given intercepts (F-IF.5; F-IF.7, 9; F-IF.4) ➔ Given a point and a slope (A-CED.4; F-IF.5) <p>Scatter Plots (A-REI.10; S-ID.6)</p> <ul style="list-style-type: none"> ➔ Line of best fit (S-ID.7) ➔ Correlation coefficient (S-ID.8) ➔ Residuals - distance from the line of best fit to the pt (S-ID.7) ➔ Causation (one having an effect on the other) vs Correlation (positive or negative effect) (S-ID.9) ➔ Calculator (S-ID.8) 		<p>CCR-R.4 <i>Interpret words and phrases in mathematics.</i></p> <p>RST.3 <i>Multi-step problems</i></p>
May (2 weeks)	Linear Functions (con't)	<p>Graphing inequalities (F-IF.4, 5; F-IF.7)</p> <ul style="list-style-type: none"> ➔ Shading (A-CED.3) <p>Linear/Linear systems (A-CED.3, 4; A-REI.10, 11, 12)</p> <ul style="list-style-type: none"> ➔ Algebraic (F-IF.9) <ul style="list-style-type: none"> -substitution -elimination ➔ Graphing ➔ Systems of Inequalities (A-REI.5, 6) 		<p>CCR-R.4 <i>Interpret words and phrases in mathematics.</i></p> <p>RST.3 <i>Multi-step problems</i></p>
June (2 weeks)	End of Year Review	<ul style="list-style-type: none"> • Review all previous topics focusing on the MAJOR topics 		

Common Core Algebra
2-year sequence - Year 2
Grades 10–11

Major about 70%
Supporting about 20%
Additional about 10%

<u>Month</u>	<u>Content</u>	<u>Concepts & Skills with Mathematics Common Core Standards</u>	<u>Major Assessments</u>	<u>ELA Common Core</u>
September (2.5 weeks)	Algebra 2–1 Pretest Hit weak areas from Algebra 2–1			
September (1 week)	Introduction to Functions Part II *Linear *Quadratic *Exponential *Absolute Value *Piecewise Linear *Square Root *Cubic *Cube Root *Step Functions	Identifying different functions (N-Q.1, 2, 3; F-LE.1, 3) → Use graphs (F-IF.5; F-IF.9) → Using tables & intervals (F.LE.2, 5) → Equations → Function rule – Vertical line test – Horizontal line test		W.11d <i>Writing stories based on graphs.</i> CCR-W.1 <i>Writing arguments to justify your solution.</i>
October (4 weeks)	Introduction to Functions Part II (con't)	Interpret (interval notation) (N-Q.1, 2, 3; F-IF.4) → Increasing → Decreasing → Constant Stories (F-IF.5, F-LE.5) Graphing (F-IF.5, F-LE.1, 3, 5) → Given tables (scales) (F-IF.9) → Filling in tables (F-LE.2) → One-to-one → Domain/Range → Intercepts and intervals → Graphing and writing equations from word problems		W.11d <i>Writing stories based on graphs.</i> CCR-W.1 <i>Writing arguments to justify your solution.</i>

November (3.5 weeks)	Quadratic Functions	<p>Graphing (A-REI.10; F-IF.4, 5; F-BF.1)</p> <ul style="list-style-type: none"> ➔ Identify/interpret graph (F-IF.1) ➔ Domain/Range (F-IF.1) ➔ Axis of symmetry (A-CED.4) ➔ Intercepts (A-CED.4; F-IF.7) ➔ Max/Min ➔ End behavior ➔ Graphing within an interval ➔ Periodicity (A-CED.3) ➔ Average Rate of Change (F-IF.6; F.LE.2) <ul style="list-style-type: none"> - Slope - Equation (symbolically) - Table - Graphs ➔ Roots/Solutions/Zeros (A-REI.4; A-APR.3) ➔ Transformations (F-BF.3) ➔ Symmetry (Even/Odd) ➔ Word Problems (A-CED.1, 2) <p>Quadratic/Linear Systems (A-CED.4; A-REI.11; A-REI.5)</p>		<p>CCR-R.4 <i>Interpret words and phrases in mathematics.</i></p> <p>RST.3 <i>Multi-step problems</i></p> <p>RST.2 <i>Determine central ideas from word problems.</i></p>
December (1 week)	Quadratic Functions (con't)	<ul style="list-style-type: none"> ➔ Transformations (F-BF.3) ➔ Symmetry (Even/Odd) ➔ Word Problems (A-CED.1, 2) <p>Quadratic/Linear Systems (A-CED.4; A-REI.11; A-REI.5)</p>		<p>RST.3 <i>Multi-step problems</i></p>
December (2 weeks)	Quadratic Functions (con't)	<p>Factoring (A-SSE.2; A-SSE.3; F-BF.1; A-REI.4)</p> <ul style="list-style-type: none"> ➔ GCF (review) ➔ Difference of Perfect Squares ➔ Trinomials <ul style="list-style-type: none"> - $a = 1$ - $a > 1$ ➔ completing the square (F-IF.8) ➔ roots/zeros (A-APR.3) 		<p>RST.3 <i>Multi-step problems</i></p>

January (2 weeks)	Quadratic Functions (con't)	Factoring (A-SSE.2; A-SSE.3; F-BF.1; A-REI.4) <ul style="list-style-type: none"> ➔ GCF (review) ➔ Difference of Perfect Squares ➔ Trinomials <ul style="list-style-type: none"> - $a = 1$ - $a > 1$ ➔ completing the square (F-IF.8) ➔ roots/zeros (A-APR.3) 		RST.3 <i>Multi-step problems</i>
January (2 weeks)	Quadratic Functions (con't)	Quadratic Formula (A-APR.3; A-CED.4) <ul style="list-style-type: none"> ➔ Discriminant (A-REI.4; A-CED.3) <ul style="list-style-type: none"> - Simplifying the radical (N.RN.3) - Real vs imaginary ans. Even/Odd Symmetry (F-IF.8; F-IF.1, 2) <ul style="list-style-type: none"> ➔ $f(x) = f(-x)$ EVEN wrt y-axis ➔ $f(-x) = -f(x)$ ODD wrt origin 		CCR-R.4 <i>Interpret words and phrases.</i>
February (3 weeks)	Exponential Functions	Graphing (A-REI.10; F-IF.4, 5; F-IF.7; F-LE.3) <ul style="list-style-type: none"> ➔ y-intercept (A-CED.4) ➔ end behavior ➔ intervals (F-LE.5) ➔ tables (F-LE.2) ➔ Periodicity (A-CED.3) ➔ Average Rate of Change (F-IF.6) ➔ Appropriate scales (F-IF.9) Growth and Decay (A-CED.1, 2; A-SSE.3) Word Problems (A-CED.1, 2)		W.11d <i>Writing stories using graphs and writing equations.</i>

March (1.5 weeks)	Statistics	Measures of Central Tendency (S-ID.2) → Mean → Median → Mode Range/Interquartile Range (S-ID.2) Outliers (S-ID.3) Standard Deviation/Bell Curve (S-ID.2, 3; S-ID.8) Comparing data sets (S-ID.2; S-ID.8)		WHST.2f <i>Writing concluding statements.</i>
March (1.5 weeks)	Statistics (con't)	Box 'n Whisker Plots (S-ID.1) → Interquartile Range (S-ID.2) → Outliers (S-ID.3) → Describe & Compare (S-ID.3) - Condensed interval vs wider interval		RST.5 <i>Analyze the structure of relationships using prior knowledge.</i>
April (3 weeks)	Statistics (con't)	Scatter Plots → Outliers (S-ID.3) → Residuals (S-ID.7) → Linear (S-ID.6; S-ID.7) → Quadratic (S-ID.6) → Exponential (S-ID.6) → Describe Correlation with the graph of best fit (S-ID.8, 9) Dot Plots (S-ID.1)		RST.5 <i>Analyze the structure of relationships using prior knowledge.</i>
April (1 week)	Statistics (con't)	Histograms (S-ID.1, 3) → Frequency Tables (S-ID.5) → Cumulative Frequency (S-ID.5) → Intervals (how to determine the best interval)		RST.5 <i>Analyze the structure of relationships using prior knowledge.</i>

May-June	Review all Algebra I Common Core Topics	<ul style="list-style-type: none"> • Equations/Expressions • Inequalities • Polynomials • Linear • Quadratic • Exponential • Factoring • Statistics 		CCR.W.1 W.11d SL.1d CCR-R.4 RST.2, 3, 4, 5 WHST.2f
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SL.1d - *Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.*

W.11d - Create poetry, stories, plays, and other literary forms (e.g. videos, art work).

CCR-W.1 - Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

CCR-R.4 - Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

RST.2 - Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

RST.3 - Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

RST.4 - *Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.*

RST.5 - *Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).*

WHST.2f - *Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).*