

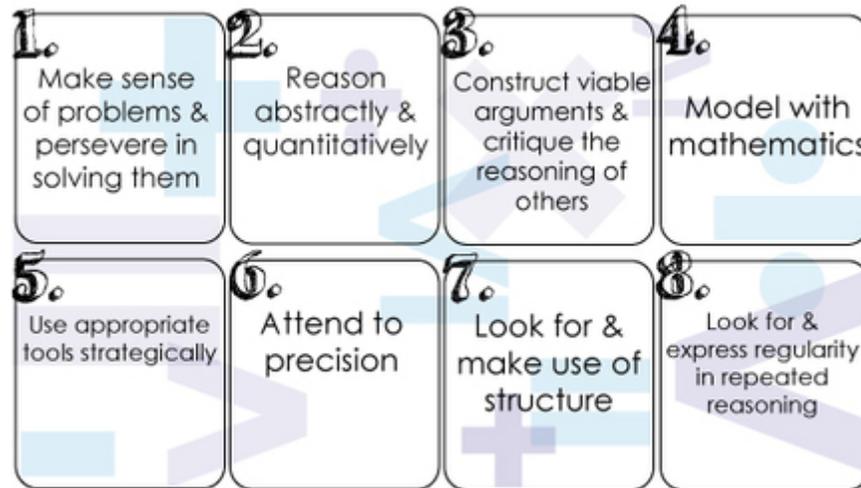
Huntsville City Schools

Pacing Guide 2017 - 2018

Course Algebra IA Grade 9th

Note: Please see documents on A+ College Ready website for more details.

Ixl.com alignment for Pearson textbook is in the table at the end of the pacing guide.



Links and Additional Resources

- **Dan Meyer Blog**
<http://blog.mrmeyer.com/category/3acts/>
- **Dan Meyer List of Activities**
<https://docs.google.com/spreadsheet/ccc>
- [?key=0AjlqyKM9d7ZYdEhtR3BJMmdBWnM2YWxWYVM1UWowTEE#gid=0](http://www.graniteschools.org/mathvocabulary/?key=0AjlqyKM9d7ZYdEhtR3BJMmdBWnM2YWxWYVM1UWowTEE#gid=0)
- **Granite City Math Vocabulary**
<http://www.graniteschools.org/mathvocabulary/>

Things to Remember:

1. Mixed Reviews are at end of each section. The teacher book has a list of standards next to questions.
2. [Interactmath.com](http://interactmath.com), commoncorepal.com, and poweralgebra.com are good resources for practice and review.
3. Cumulative Standards Review is located at the end of each chapter for in-depth practice problem.

Huntsville City Schools
Pacing Guide 2017 - 2018
Algebra IA Ninth Grade
First Nine Weeks

Basic Number, Quantity, Algebra, & Equations

Standard	Resources	Approximate Pacing Number of Days: 41 days
Unit: Basic Number, Quantity, Basic Algebra/Pre-Algebra		
The Real Number System Use properties of rational and irrational numbers		
ALCOS 3: Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. [N-RN3]	Pearson (textbook): CB 1-6	
Quantities Reason quantitatively and use units to solve problems. (<i>Foundation for work with expressions, equations, and functions.</i>)		
ALCOS 4: Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. [N-Q1]	Pearson (textbook): 2-5, CB 2-5: , 2-6, 2-7, 4-4, 5-7 Other: <ul style="list-style-type: none"> • LTF: Connecting a Verbal Description to a Table or Graph • LTF: Walk the Line • LTF: Literal Equations-Reviewing and Foreshadowing 	
ALCOS 5: Define appropriate quantities for the purpose of descriptive modeling. [N-Q2]	Pearson (textbook): CB 2-5, 2-6, 3-3, 4-5, 5-2 Other: <ul style="list-style-type: none"> • LTF: Literal Equations-Reviewing and Foreshadowing 	
ALCOS 6: Choose a level of accuracy appropriate to limitations on	Pearson (textbook): 2-10	

measurement when reporting quantities. [N-Q3]		
Seeing Structure in Expressions		
Interpret the structure of expressions. (<i>Linear only</i>)		
ALCOS 7: Interpret expressions that represent a quantity in terms of its context. [A-SSE1] a. Interpret parts of an expression such as terms, factors, and coefficients. [A-SSE1a]	Pearson (textbook): 1-1, 1-2, 1-7, 4-5, 4-7, 5-3, 5-4	
ALCOS 7: Interpret expressions that represent a quantity in terms of its context. [A-SSE1] b. Interpret complicated expressions by viewing one or more of their parts as a single entity. [A-SSE1b] Example: Interpret $P(1+r)^n$ as the product of P and a factor not depending on P .	Pearson (textbook): 1-7, 3-7, 4-7	
ALCOS 8: Use the structure of an expression to identify ways to rewrite it. [A-SSE2] 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 $(x^2 - y^2)(x^2 + y^2)$.	Pearson (textbook): 1-1, 1-2, 5-3, 5-4, 5-5	
Unit: Intro to Equations/Inequalities		
Create Equations		
Create equations that describe numbers or relationships. (Linear)		
ALCOS 12: 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. [A-CED1]	Pearson (textbook): 1-8, 2-1, 2-2, 2-3, 2-4, 2-5, 2-7, 2-8, 3-2, 3-3, 3-4, 3-6, 3-7, 3-8 Other: <ul style="list-style-type: none">• LTF: Linear Functions• LTF: Literal equations- Reviewing and Foreshadowing	
ALCOS 13: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. [A-CED2]	Pearson (textbook): 1-9, 4-5, 5-2, 5-3, 5-4, 5-5 Other: <ul style="list-style-type: none">• LTF: Connecting a Verbal Description to a Table or Graph• & Walk the Line	
ALCOS 14: Represent constraints by equations or inequalities, and by systems of equations and/or inequalities and interpret solutions as viable or non-viable options in a modeling context. [A-CED3] Example: Represent inequalities describing nutritional and cost constraints on combinations of different foods.	Pearson (textbook): 6-4, 6-5 Other: <ul style="list-style-type: none">• LTF: Maximizing Profit	
ALCOS 15: Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. [A-CED4] Example: Rearrange Ohm's law $V = IR$ to highlight resistance R .	Pearson (textbook): 2-5 Other: <ul style="list-style-type: none">• LTF: Literal Equations – Reviewing and Foreshadowing	

	<ul style="list-style-type: none"> LTF: Linear Functions 	
Reasoning with Equations and Inequalities Understand solving equations as a process of reasoning and explain the reasoning. (Master linear; learn as general principle.)		
ALCOS 16: 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. [A-REI1]	Pearson (textbook): 2-2, 2-3, 2-4, 2-5 Other: <ul style="list-style-type: none"> LTF: Literal Equations – Reviewing and Foreshadowing 	
Solve equations and inequalities in one variable. (Linear inequalities; literal that are linear in the variables being solved for)		
ALCOS 17: Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. [A-REI3].	Pearson (textbook): 2-1, 2-2, 2-3, 2-4, 2-5, 2-7, 2-8, 3-2, 3-3, 3-4, 3-5, 3-6 Other: <ul style="list-style-type: none"> LTF: Literal Equations – Reviewing and Foreshadowing 	
Other Resources for Chapters 1-3	Dan Meyer: Circle-Square World Record Airbag Falling Glowsticks Falling Rocks	

Huntsville City Schools
Pacing Guide 2017 - 2018
Algebra IA Ninth Grade
Second Nine Weeks
Intro to Inequalities & Functions

Standard	Resources	Approximate Pacing Number of Days: 44 days
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Unit: Functions (<i>linear</i>)		
Interpreting Functions		
Understand the concept of a function and use function notation. <i>(Learn as general principle; focus on linear and on arithmetic sequences.)</i>		
ALCOS 25: Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$. [F-IF1]	Pearson (textbook): 4-6 Other: <ul style="list-style-type: none"> • LTF: Introduction to Function Notation • LTF: Connecting Table Graph and Function Notation 	
ALCOS 26: Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. [F-IF2]	Pearson (textbook): 4-6 Other: <ul style="list-style-type: none"> • LTF: Introduction to Function Notation • LTF: Connecting Table Graph and Function Notation 	
Interpret functions that arise in applications in terms of the context. (<i>Linear</i>)		
ALCOS 28: For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* [F-IF4]	Pearson (textbook): 4-2, 4-3, 5-3, 5-4, 5-5 Other: <ul style="list-style-type: none"> • LTF: Analysis of Functions • LTF: Translations of Linear Functions • LTF: Write the equation of the Line Review 	
ALCOS 29: Relate the domain of a function to its graph and, where	Pearson (textbook): 4-4	

applicable, to the quantitative relationship it describes.* [F-IF5] 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.		
Other Resources for Chapter 4	Dan Meyer: Taco Cart	

Huntsville City Schools
Pacing Guide 2017 - 2018
Algebra IA Ninth Grade
Third Nine Weeks
Linear Functions (focus on linear)

Standard	Resources	Approximate Pacing Number of Days: 41 days
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Interpret functions that arise in applications in terms of the context. (<i>Linear</i>)		
<p>ALCOS 30: 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.* [F-IF6]</p>	<p>Pearson (textbook): 5-1</p> <p>Other:</p> <ul style="list-style-type: none"> • LTF: Walk the Line (MG) • LTF: Average Rate of Change (MG) • LTF: Calculating Average Rate of Change • LTF: Slope Investigation 	
Analyze functions using different representations. (<i>Linear</i>)		
<p>ALCOS 31: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* [F-IF7]</p> <p>a. Graph linear and quadratic functions, and show intercepts, maxima, and minima. [F-IF7a]</p>	<p>Pearson (textbook): 5-3, 5-4, 5-5, 5-8</p>	
<p>ALCOS 32: Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. [F-IF8]</p>	<p>Pearson (textbook):</p>	
<p>ALCOS 33: Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). [F-IF9]</p> <p>Example: Given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.</p>	<p>Pearson (textbook): 5-5</p> <p>Other:</p> <ul style="list-style-type: none"> • LTF: Analysis of Functions • LTF: Translations of Linear Functions 	

Build new functions from existing functions. (Linear)		
ALCOS 36: 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. [F-BF3]	Pearson (textbook): 5-3, CB 5-3, 5-4, 5-8	
Linear Models Construct and compare linear models and solve problems.		
ALCOS 37: Distinguish between situations that can be modeled with linear functions and with exponential functions. [F-LE1] a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. [F-LE1a]	Pearson (textbook):	
ALCOS 37: Distinguish between situations that can be modeled with linear functions and with exponential functions. [F-LE1] b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. [F-LE1b]	Pearson (textbook): 5-1 Other: <ul style="list-style-type: none"> • LTF: Walk the Line (MG) • LTF: Average Rate of Change (MG) • LTF: Calculating Average Rate of Change • LTF: Slope Investigation 	
ALCOS 38: 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). [F-LE2]	Pearson (textbook): 4-7, 5-3, 5-4, 5-5	
interpret expressions for functions in terms of the situation they model. (Linear and exponential of form $f(x) = \square \square \square + \square$)		
ALCOS 40: Interpret the parameters in a linear or exponential function in terms of a context. [F-LE5]	Pearson (textbook): 5-3, 5-4, 5-5, 5-7 Other: <ul style="list-style-type: none"> • LTF: Exponential Function Exploration • LTF: Exponential Growth (Found under Mathematical Foundations) 	
Other Resources for Chapter 5	Dan Meyer: Penny Circle	

Huntsville City Schools
Pacing Guide 2017 - 2018
Algebra IA Ninth Grade
Fourth Nine Weeks
Systems, Sequences, Statistics & Probability

Standard	Resources	Approximate Pacing Number of Days: 52
Unit: Systems of Equations & Inequalities		
Reasoning with Equations and Inequalities		
Solve systems of equations. (<i>Linear-linear</i>)		
ALCOS 19: Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions. [A-REI5]	Pearson (textbook): 6-3 Other: <ul style="list-style-type: none"> • LTF: Painting the House • LTF: Solving systems of Linear Equations 	
ALCOS 20: Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. [A-REI6]	Pearson (textbook): 6-1, 6-2, 6-3, 6-4 Other: <ul style="list-style-type: none"> • LTF: Painting the House • LTF: Solving systems of Linear Equations 	
Represent and solve equations and inequalities graphically. (<i>Linear; learn as general principle.</i>)		
ALCOS 22: Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). [A-REI10]	Pearson (textbook): 1-9, 4-2, 4-3, 4-4 Other: <ul style="list-style-type: none"> • LTF: Connecting a Verbal Description to Table and Graph • LTF: Discrete and Continuous Data 	
ALCOS 23: Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions	Pearson (textbook): CB 4-4, CB 6-1, 7-6	

approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.* [A-REI11]		
ALCOS 24: Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. [A-REI12]	Pearson (textbook): 6-5, 6-6, CB 6-6 Other: LTF: Maximizing Profit	
Unit: Sequences		
Building Functions Build a function that models a relationship between two quantities. <i>(For standards 34 and 35, linear)</i>		
ALCOS 34: Write a function that describes a relationship between two quantities.* [F-BF1] a. Determine an explicit expression, a recursive process, or steps for calculation from a context. [F-BF1a]	Pearson (textbook): 4-7, 5-3, 5-4, 5-5 Other: • LTF: Write the equation of the Line Review	
ALCOS 34: Write a function that describes a relationship between two quantities.* [F-BF1] b. Combine standard function types using arithmetic operations. [F-BF1b] Example: Build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	Pearson (textbook):	
ALCOS 35: Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.* [F-BF2]	Pearson (textbook): 4-7, 7-8 Other: • LTF: Arithmetic Sequences (MG) • LTF: Writing Equations Using Sequences	
Unit: Statistics & Probability		
Interpreting Categorical and Quantitative Data Summarize, represent, and interpret data on two categorical and quantitative variables. <i>(Linear focus, discuss general principle.)</i>		
ALCOS 45: Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. [S-ID6] a. Fit a function to the data; use functions fitted to data to solve problems in the context of data. Use given function or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models. [S-ID6a]	Pearson (textbook): 5-7 Other: • LTF: Fitting a Line to Data • LTF: Use Dotplots	
ALCOS 45: Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. [S-ID6] b. Informally assess the fit of a function by plotting and	Pearson (textbook): CB 5-7 Other: • LTF: Fitting a Line to Data	

analyzing residuals	<ul style="list-style-type: none"> LTF: Use Dotplots 	
<p>ALCOS 45: Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. [S-ID6]</p> <p>c. Fit a linear function for scatter plot that suggests a linear association. [S-ID6c]</p>	<p>Pearson (textbook): 5-7</p> <p>Other:</p> <ul style="list-style-type: none"> LTF: Fitting a Line to Data LTF: Use Dotplots 	
Interpret Linear Models		
<p>ALCOS 46: Interpret the slope (rate of change) and intercept (constant term) of a linear model in the context of the data. [S-ID7]</p>	<p>Pearson (textbook): 5-7</p> <p>Other:</p> <ul style="list-style-type: none"> LTF: Calculating Average Rate of Change LTF: Slope Investigation 	
Other Resources for Chapter 6	<p>Dan Meyer: Circle-Square</p>	
Other Resources for Chapter 7	<p>Non LTF Lesson available on apluscollegeready.com: How do you start and how do you change?</p> <p>Dan Meyer: Super Stairs</p>	

IXL-Pearson Correlation Assignments

Pearson Chapter-Section	IXL Assignments	Pearson Chapter-Section	IXL Assignments
1.1	I.1, I.4	4.7	P.1-P.7
1.2	B.1, B.3, B.7 (Possibly V.1 & V.8)	5.1	S.2, S.3, S.4
1.3	A.1, A.2, A.4	5.2	R.1, R.2, R.3, R.4, R.5
1.4	H.1, H.2, H.3, H.4	5.3	S.5, S.6, S.7, S.8
1.5	B.2, B.4, B.6	5.4	S.17, S.18, S.19
1.6	A.3, A.7, B.5	5.5	S.12, S.13, S.14
1.7	(none)	5.6	S.20, S.21
1.8	I.5, I.6, I.7	5.7	N.6
1.9	J.2	5.8	DD.1, DD.2, DD.3, DD.4
2.1	J.3	6.1	U.1, U.2, U.4
2.2	J.4	6.2	U.8
2.3	J.5	6.3	U.5, U.10
2.4	J.6	6.4	U.3, U.9, U.11, U.13, U.14, U.15
2.5	S.9	6.5	T.1, T.2, T.3, T.4
2.6	C.1, C.2, C.3 (C.4)	6.6	T.5, T.6
2.7	C.5, C.6	7.1	V.3
2.8	C.7	7.2	V.4
2.9	D.1, D.2, D.3	7.3	V.7
2.10	D.4, D.5, D.6, D.7, D.8	7.4	V.5, V.6, V.9
3.1	K.1, K.2, K.3	7.5	V.10
3.2	K.4	7.6	X.1, X.2
3.3	K.5 (Mix of 3.2-3.2: K.6, K.7)	7.7	X.3
3.4	K.8, K.9, K.10, K.11	7.8	P.1-P.7
3.5	(none)	8.1	(Review with Y.1-Y.5) Z.1, Z.4, Z.5
3.6	K.12, K.13, K.14, K.15	8.2	Z.6, Z.10, AA.1, AA.2
3.7	L.1, L.2, L.3, L.4	8.3	Z.8
3.8	(none)	8.4	Z.9
4.1	Q.1	8.5	AA.3
4.2	Q.3, Q.13, Q.14	8.6	AA.4
4.3	S.1, Q.4, Q.5, Q.6	8.7	AA.5
4.4	Q.7, Q.8, Q.9	8.8	AA.7 (AA.8 is good review at this point)
4.5	Q.10	9.1	BB.1, BB.2
4.6	Q.2	9.2	BB.3

Pearson Chapter-Section	IXL Assignments
9.3	BB.4, BB.5
9.4	BB.6
9.5	BB.7, BB.8
9.6	BB.9, BB.10
9.7	CC.1, CC.2
9.8	BB.11
10.1	(none)
10.2	EE.1, EE.2
10.3	EE.3, EE.4, EE.5, EE.6, EE.7
10.4	FF.1, FF.2, FF.3, FF.4
10.5	(none)
11.1	GG.3
11.2	GG.4
11.3	GG.5
11.4	GG.6
11.5	GG.7
11.6	R.6, R.7, R.8
11.7	GG.1
12.1	M.1-M.2, M.3, M.4, M.5, M.6
12.2	N.2
12.3	KK.1
12.4	N.5, KK.2
12.5	KK.3, KK.4, KK.5, KK.6, KK.7, KK.8
12.6	JJ.6, JJ.8 (JJ.4, JJ.5, JJ.7)
12.7	JJ.1, JJ.2
12.8	JJ.3

Listed below are the technology standards for grades nine through twelve. You are to make every effort to incorporate the applicable standards into your daily classroom lessons. These standards should be noted in your lesson plans.

Alabama Technology Standards Ninth – Twelfth Grade

Operations and Concepts

Students will:

2. Diagnose hardware and software problems.
Examples: viruses, error messages
Applying strategies to correct malfunctioning hardware and software
Performing routine hardware maintenance
Describing the importance of antivirus and security software
3. Demonstrate advanced technology skills, including compressing, converting, importing, exporting, and backing up files.
Transferring data among applications
Demonstrating digital file transfer
Examples: attaching, uploading, downloading
4. Utilize advanced features of word processing software, including outlining, tracking changes, hyperlinking, and mail merging.
5. Utilize advanced features of spreadsheet software, including creating charts and graphs, sorting and filtering data, creating formulas, and applying functions.
6. Utilize advanced features of multimedia software, including image, video, and audio editing.

Digital Citizenship

9. Practice ethical and legal use of technology systems and digital content.
Explaining consequences of illegal and unethical use of technology systems and digital content
Examples: cyberbullying, plagiarism
Interpreting copyright laws and policies with regard to ownership and use of digital content
Citing sources of digital content using a style manual
Examples: Modern Language Association (MLA), American Psychological Association (APA)

Research and Information Fluency

11. Critique digital content for validity, accuracy, bias, currency, and relevance.

Communication and Collaboration

12. Use digital tools to publish curriculum-related content.

Examples: Web page authoring software, coding software, wikis, blogs, podcasts

13. Demonstrate collaborative skills using curriculum-related content in digital environments.

Examples: completing assignments online; interacting with experts and peers in a structured, online learning environment

Critical Thinking, Problem Solving, and Decision Making

14. Use digital tools to defend solutions to authentic problems.

Example: disaggregating data electronically

Creativity and Innovation

1. Create a product that integrates information from multiple software applications.

Example: pasting spreadsheet-generated charts into a presentation