

Huntsville City Schools 2017 – 2018 Pacing Guide Algebraic Connections Grades 10th – 11th

****** the following pacing recommendation is given with the intent that pre and post assessments will be given and used in order to reteach standards******

Math Practices	Online Resources
<p>The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council’s report <i>Adding It Up</i>: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy).</p> <ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. 	<p>Dan Meyer’s Ted Talk abo teaching math: https://youtu.be/qocAoN4j</p> <p>Links to his 3-act activities, sorted by standard: https://docs.google.com/spreadsheet/ccc?key=0AjIqyKM9d7ZYdEhtR3BJMmdBWnM2YWxWYVM1UWowTEE#gid=0</p> <p>www.desmos.com is a free online calculator. Excellent for working with linear equations, scatterplots, and best-fit lines.</p> <p>https://teacher.desmos.com/ has some great activities for introducing and working with functions.</p> <p>www.geogebra.org is a free online geometry tool. It is great for working with transformations.</p> <p>www.opencurriculum.org is a website that curates activities from all over the web, sorted by standard.</p> <p>https://betterlesson.com/ empowering teachers to drive their own professional learning</p> <p>http://map.mathshell.org/lessons.php has great formative assessments and group activities, searchable by standard.</p>

Correlation Math for Your World and Alabama Course of Study: Mathematics

http://www.pearsonschool.com/correlations/ADOPT_AL_%20Math_for_Your_World_2012_Final.pdf

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First Nine Weeks

Standard	Optional Resources	Pacing Recommendation
<p>1. Create algebraic models for application-based problems by developing and solving equations and inequalities, including those involving direct, inverse, and joint variation.</p> <p>Example: The amount of sales tax on a new car is directly proportional to the purchase price of the car. If the sales tax on a \$20,500 car is \$1,600, what is the purchase price of a new car that has a sales tax of \$3,200? Answer: The purchase price of the new car is \$41,000.</p>	<p>Math For Your World (Blitzer) Chapter 4</p> <p>ALEX Website Lesson(s) Standard #1 "Rates and Taxes"</p> <p>Project Ideas: Oil Spills on Land</p> <p>Web Pages: Direct, Inverse, and Joint Variation</p>	<p style="text-align: center;">8 days</p>
<p>5. Determine approximate rates of change of nonlinear relationships from graphical and numerical data.</p>	<p>Math For Your World (Blitzer) Section 1.2, 5.1, 5.2, 5.3</p> <p>Websites: Teacher.desmos.com "match my lines"</p>	<p style="text-align: center;">5 days</p>

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Second Nine Weeks**

Standard	Resources	Pacing Recommendation
<p>1. Create algebraic models for application-based problems by developing and solving equations and inequalities, including those involving direct, inverse, and joint variation.</p> <p>Example: The amount of sales tax on a new car is directly proportional to the purchase price of the car. If the sales tax on a \$20,500 car is \$1,600, what is the purchase price of a new car that has a sales tax of \$3,200? Answer: The purchase price of the new car is \$41,000.</p>	<p>Math For Your World (Blitzer) Chapter 6.1-4</p> <p>ALEX Website Lesson(s) Standard #1 "Rates and Taxes"</p> <p>Project Ideas: Oil Spills on Land</p> <p>Web Pages: Direct, Inverse, and Joint Variation</p>	<p style="text-align: center;">8 days</p>
<p>3. Use formulas or equations of functions to calculate outcomes of exponential growth or decay.</p> <p>Example: Solve problems involving</p>	<p>Math For Your World (Blitzer) Section 6.5</p> <p>ALEX Website Lesson(s) "Exponential Growth and Decay" "Rags to Riches or Riches to Rags?"</p>	<p style="text-align: center;">4 days</p>

<p>compound interest, bacterial growth, carbon-14 dating, and depreciation.</p> <p>6. Use the extreme value of a given quadratic function to solve applied problems.</p> <p>Example: Determine the selling price needed to maximize profit.</p>	<p>Projects: Exponential Growth and Decay in the Real World M&M Lab</p>	
<p>10. Critique measurements in terms of precision, accuracy, and approximate error.</p> <p>Example: Determine whether one candidate has a significant lead over another candidate when given their current standings in a poll and the margin of error.</p>	<p>Math For Your World (Blitzer) Sections 12.1,12.2, and 12.3</p>	<p>4 days</p>
<p>12a. Predict probabilities given a frequency distribution.</p>	<p>Math For Your World (Blitzer) Sections 11.4 and 11.6</p>	<p>4 days</p>

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Third Nine Weeks

Standard	Resources	Pacing Recommendation
<p>11. Use ratios of perimeters, areas, and volumes of similar figures to solve applied problems.</p> <p>Example: Use a blueprint or scale drawing of a house to determine the amount of carpet to be purchased.</p>	<p>Math For Your World (Blitzer) Section 10.1-5,7</p> <p>Web Pages: Area Ratios of Similar Figures</p>	<p>12 days</p>
<p>9. Analyze aesthetics of physical models for line symmetry, rotational symmetry, or the golden ratio.</p> <p>Example: Identify the symmetry found in nature, art, or architecture.</p>	<p>Math for Your World (Blitzer) Section 10.3 (Tessellations)</p> <p>ALEX Website Lesson(s) Fibonacci Poetry; Symmetry: Theory, Reality and Art!; Let's Tessellate;</p>	<p>1 days</p>
<p>8. Determine missing information in an application-based situation using properties of right triangles, including trigonometric ratios and the Pythagorean Theorem.</p>	<p>Math For Your World (Blitzer) Sections 10.2 and 10.6</p> <p>ALEX Website Lesson(s) Cosmic Measurements;</p>	<p>7 days</p>

Example: Use a construction or landscape problem to apply trigonometric ratios and the Pythagorean Theorem.	How tall is the school's flagpole? I Can Determine the Height of a Rocket;	
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Standard	Resources	Pacing Recommendation
<p>7. Use analytical, numerical, and graphical methods to make financial and economic decisions, including those involving banking and investments, insurance, personal budgets, credit purchases, recreation, and deceptive and fraudulent pricing and advertising.</p> <p>Examples: Determine the best choice of certificates of deposit, savings accounts, checking accounts, or loans. Compare the costs of fixed- or variable-rate mortgage loans. Compare costs associated with various credit cards. Determine the best cellular telephone plan for a budget.</p>	<p>Math For Your World (Blitzer) Chapters 7 and 8</p> <p>ALEX Website Lesson(s) Standard #7 "Let's Move to College" "My Future Life: Let's Get Real" "My First Apartment" "FAFSA can be Taxing!" "What's the Real Cost of That Car?" "Predicting Financial Future"</p>	20 days

<p>7a. Create, manually or with technological tools, graphs and tables related to personal finance and economics.</p> <p>Example: Use spreadsheets to create an amortization table for a mortgage loan or a circle graph for a personal budget.</p>	<p>Math For Your World (Blitzer) Sections 8.3 and 8.4</p> <p>Resources Budget Project created 2016-17 Email: taylor.mendenhall@hsv-k12.org for resources</p>	<p>included above</p>
<p>(Introduction)</p> <p>4. Determine maximum and minimum values of a function using linear programming procedures.</p> <p>Example: Observe the boundaries $x > 0$, $y > 0$, $2x - 3y + 15 > 0$, and $x < 9$ to find the maximum and minimum values of $(,.)f_{xy} = 3x + 5y$.</p>	<p>Math For Your World (Blitzer) 5.5</p> <p>Web Pages: Linear Programming Using Linear Programming Gizmo Activity Real World Linear Programming Using Linear Programming in Real Life</p>	<p>2 days</p>

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*****Use any extra time at the end of the year to review and prepare for Algebra 2*****

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

15. Create a product that integrates information from multiple software applications.
Example: pasting spreadsheet-generated charts into a presentation