

**Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018**

Standards	1st Nine Weeks Resources	Approximate Pacing Number of Days
<p>ALCOS #1 (8-NS1): Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.</p> <p>ALCOS #2 (8-NS2): Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions.</p>	<p><u>Rational and Irrational Numbers</u> (The Number System) Digits Topic 1 - Lessons 1-1 – 1-5 IXL: 8th grade (Level J): D.1, D.7, D.8, F.15 Small Lab: Gear Ratio Game Fraction Lab Fraction Action FAL-Formative Assessment Lesson Classifying Rational and Irrational Numbers</p>	8
<p>ALCOS #9 (8-EE7, 8-EE7a, 8-EE7b): Solve linear equations in one variable. (a) Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms until an equivalent</p>	<p><u>Solving Equations in One Variable</u> (Expressions and Equations) Digits Topic 2 Lessons 2-1 – 2-6 IXL: 8th grade (Level J): U.5 - U.10 Small Lab: Constant Velocity</p>	9

Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018

<p>equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). (b) Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions, using the distributive property and collecting like terms.</p>	<p>Constant Acceleration Gear Ratio Game Gear Lifting Game AMSTI: Variables and Patterns Inv 3-4 Moving Straight Ahead Inv 1-4 Thinking with Mathematical Models Inv 1-3 Say It With Symbols Inv 1-5 The Shapes of Algebra Inv 3-4 LTF: Module 2 – Working with Formulas Dan Meyer 3 Act Math Acts: Yellow Starbursts FALs (Formative Assessment Lessons) Solving Linear Equations in One Variable</p>	
<p>ALCOS #3 (8-EE1): Know and apply the properties of integer exponents to generate equivalent numerical expressions. ALCOS #4 (8-EE2): Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that the square root of 2 is irrational.</p>	<p><u>Integer Exponents</u> (Expressions and Equations) Digits Topic 3 Lessons 3-1 – 3-7 IXL: 8th grade (Level J): F.7, F.10, F.11, F.13, F.18 Small Lab: Constant Velocity Constant Acceleration Gear Ratio Game Gear Lifting Game AMSTI: Growing, Growing, Growing Inv. 5 Looking for Pythagoras Inv. 2-4 LTF:</p>	10

**Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018**

	<p>Module 9 – <u>Positive and Negative Exponents</u> FAL (Formative Assessment Lesson) Applying Properties of Exponents</p>	
<p>ALCOS #5 (8-EE3): Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.</p> <p>ALCOS #6 (8-EE4): 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. Interpret scientific notation that has been generated by technology.</p>	<p><u>Scientific Notation</u> (Expressions and Equations) Digits Topic 4 Lessons 4-1 – 4-5 IXL: 8th grade (Level J): G.1-G.4 Small Lab: Constant Velocity Constant Acceleration Gear Ratio Game Gear Lifting Game AMSTI: <u>Growing, Growing, Growing Inv</u> 1-2, 4-5 LTF: Model 9 – <u>Negative Exponents</u> FAL (Formative Assessment Lesson) Estimating Length Using Scientific Notation</p>	6

**Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018**

Standards	2nd Nine Weeks Resources	Approximate Pacing Number of Days
<p>ALCOS #7 (8-EE5): Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.</p> <p>ALCOS #8 (8-EE6): Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.</p>	<p><u>Graphing Linear Equations</u> (Expressions and Equations) Digits Topic 5 Lessons 5-1 – 5-7 Tech Plan (Graphing Calculator): Graph Lines in Slope-Intercept Form IXL: 8th grade (Level J): X.5, W.1 – W.4 Alg (Level K): S.5-S.8 Small Lab: Constant Velocity Constant Acceleration Gear Ratio Game Gear Lifting Game AMSTI: <u>Moving Straight Ahead Inv 4</u> <u>Thinking with Mathematical Models Inv 2</u> LTF: Module 9 – <u>Goodyear Walks Using the Rule of Four</u> Module 3 – <u>Average Rate of Change</u> <u>Introduction to Related Rates Using Area/Right Triangles</u> Module 7 – <u>Ant and the Sugar</u> <u>Walk the Line</u> FAL (Formative Assessment Lesson) http://map.mathshell.org/download.php?fileid=1676</p>	11
<p>ALCOS #10 (8-EE8, 8-EE8a, 8-EE8b, 8-EE8c): Analyze and solve pairs of simultaneous linear equations. (a) Understand that</p>	<p><u>Systems of Equations</u> (Expressions and Equations) Digits Topic 6 Lessons 6-1 – 6-7</p>	13

**Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018**

<p>solutions to a system of two linear equations in two variables correspond to points of intersections of their graphs because points of intersection satisfy both equations simultaneously. (b) Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. (c) Solve real-world and mathematical problems leading to two linear equations in two variables.</p>	<p>Tech Plan (Graphing Calculator): Graph Systems of Equations IXL: 8th grade (Level J): Y.2, Y.8, Y.10 Small Lab: Constant Velocity Constant Acceleration Gear Ratio Game Gear Lifting Game AMSTI: The Shapes of Algebra Inv 2-4 Moving Straight Ahead Inv 2-4 LTF: Module 9 – Linear Functions Dan Meyer 3 Act Math Acts: Ditch Diggers Playing Catchup FAL (Formative Assessment Lesson) Classifying Solutions to Systems of Equations</p>	
<p>ALCOS #11 (8-F1): Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in Grade 8).</p> <p>ALCOS #13 (8-F3): Interpret the equation $y = mx + b$ as defining a linear function whose graph is a straight line; give examples of functions that are not linear.</p>	<p><u>Defining and Comparing Functions</u> (Functions) Digits Topic 7 Lessons 7-1 – 7-7 Tech Plan (Graphing Calculator): Graph Non-linear Functions IXL: 8th grade (Level J): X.7, X.10, X.14 AMSTI: Variables and Patterns Inv 1-4 Moving Straight Ahead Inv 1-5 Thinking with Mathematical Models Inv 1-3 Frogs, Fleas, and Painted Cubes Inv 1-4 Say It With Symbols Inv 1-4 LTF:</p>	11

Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018

<p>ALCOS #15 (8-F5): Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g. where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.</p>	<p>Module 1 – Interpreting Distance Graphs Interpreting Rate Graphs Dan Meyer 3 Act Math Acts: Joules FAL (Formative Assessment Lesson) Interpreting Distance-Time Graphs</p>	
--	---	--

**Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018**

Standards	3 rd Nine Weeks Resources	Approximate Pacing Number of Days
<p>ALCOS #12 (8-F2): Compare properties of two functions, each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).</p> <p>ALCOS #14 (8-F4): 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 linear function in terms of the situation it models and in terms of its graph or a table of values.</p>	<p><u>Linear Functions</u> (Functions) Digits Topic 8 Lessons 8-1 – 8-6 Tech Plan (Graphing Calculator): Graph Functions to Compare Properties IXL: (see Topic 5) LTF: Module 3 – <u>Fill It Up II</u> Module 7 –<u>Detecting Linear Motion</u> <u>Introduction to Related Rates Using Volume</u> Dan Meyer 3 Act Math Acts: 25 Billion Acts</p>	9
<p>ALCOS #16 (8-G1, 8-G1a, 8-G1b, 8-G1c): Verify experimentally the properties of rotations, reflections, and translations: (a) Lines are taken to lines, and line segments are taken to line segments of the same length. (b) Angles are taken to angles of the same measure. (c) Parallel lines are taken to parallel lines.</p> <p>ALCOS #17 (8-G2):</p>	<p><u>Congruence</u> (Geometry) Digits Topic 9 Lessons 9-1 – 9-5 IXL: 8th grade (Level J): Q.1, Q.2, Q.4, Q.6 AMSTI: <u>Kaleidoscopes, Hubcaps, and Mirrors Inv 1-5</u> LTF: Module 1 – <u>Pictures and Transformations</u> <u>Transformations and Tessellations</u></p>	9

Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018

<p>Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.</p>	<p><u>Water Park</u> FAL (Formative Assessment Lesson) Representing and Combining Transformations</p>	
<p>ALCOS #18 (8-G3): Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. ALCOS #19 (8-G4): Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.</p>	<p><u>Similarity</u> (Geometry) Digits Topic 10 Lessons 10-1 – 10-4 IXL: 8th grade (Level J): Q.8 – Q.10 AMSTI: Stretching and Shrinking Inv 2 FAL (Formative Assessment Lesson) Identifying Similar Triangles</p>	7
<p>ALCOS #20 (8-G5): Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.</p>	<p><u>Properties Involving Angles</u> (Geometry) Digits Topic 11 Lessons 11-1 – 11-6 IXL: 8th grade (Level J): N.3, N.6 AMSTI: Shapes and Designs Inv 3 LTF: Module 8 – Angles of a Regular Polygon FAL (Formative Assessment Lesson) Applying Angle Theorems</p>	9

**Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018**

Standards	4 th Nine Weeks Resources	Approximate Pacing Number of Days
<p>ALCOS #21 (8-G6): Explain a proof of the Pythagorean Theorem and its converse.</p> <p>ALCOS #22 (8-G7): Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.</p> <p>ALCOS #23 (8-G8): Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.</p>	<p><u>Using the Pythagorean Theorem</u> (Geometry) Digits Topic 12 Lessons 12-1 – 12-6</p> <p>IXL: 8th grade (Level J): O.1 – O.5, (P.3 & P.4)</p> <p>AMSTI: Looking for Pythagoras Inv 2-4</p> <p>LTF: Module 9 – Minimizing Travel Time Module 2 – Pythagorean Theorem Investigation</p> <p>Dan Meyer 3 Act Math Acts: Taco Cart</p> <p>FAL (Formative Assessment Lesson) Discovering the Pythagorean Theorem</p>	9
<p>ALCOS #24 (8-G9): Know the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.</p> <p><i>Note: Surface area is not in the standard and will not be on the benchmark exam.</i></p>	<p><u>Volume</u> (Geometry) Digits Topic 13 Lessons 13-2, 13-4, 13-6, 13-7</p> <p>IXL: 8th grade (Level J): N.31 and N.32</p> <p>AMSTI: Filling and Wrapping Inv 3-5</p> <p>LTF: Module 2 – An “Apeeling” Problem Solids of Revolution Unit Dog</p> <p>FAL (Formative Assessment Lesson) Sampling and Estimating: How Many Jellybeans</p>	10

Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018

<p>ALCOS #25 (8-SP1): Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.</p> <p>ALCOS #26 (8-SP2): Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.</p> <p>ALCOS #27 (8-SP3): Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.</p>	<p><u>Scatter Plots</u> (Statistics) Digits Topic 14 Lessons 14-1 – 14-7 IXL: 8th grade (Level J): A.A.14 AMSTI : <u>Samples and Populations</u> Inv 4 <u>Moving Straight</u> Inv 1-4 LTF: Module 8 – <u>Interesting Limit</u> FAL (Formative Assessment Lesson) Intrepreting and Using Data: Setting Taxi Fares</p>	<p>9</p>
<p>ALCOS #28 (8-SP4): Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or</p>	<p><u>Relative Frequency</u> (Statistics) Digits Topic 15 Lessons 15-1 – 15-7 Tech Plan (Excel Spreadsheet): Make Data Tables AMSTI : <u>Data About Us</u> Inv 2 FAL (Formative Assessment Lesson) Using Data: Testing a New Product</p>	<p>8</p>

**Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018**

columns to describe possible association between the two variables.		
---	--	--

Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018

1st Nine Weeks Vocabulary

Natural Numbers, Whole Numbers, Integers, Rational Numbers, Repeating Decimal, Terminating Decimal, Irrational Numbers, Perfect Square, Real Numbers, Square Root

Equation, Linear Equation, One-Step Equations, Two-Step Equations, Distributive Property, Variable, Solution of an Equation, Infinitely Many Solutions, No Solution

Cube Root, Perfect Cube, Base, Exponent, Power, Negative Exponent Property, Zero Exponent Property

Scientific Notation

2nd Nine Weeks Vocabulary

Constant of Proportionality, Proportional Relationship, Rate, Unit Rate, Linear Equation, Slope, Y-Intercept

System of Linear Equations, Addition Method, Graphing Method, Substitution Method, Subtraction Method, Linear Equation, Ordered Pair

Input, Output, Sets, Function, Interval, Absolute Value Function, Linear Function, Nonlinear Function, Rate of Change, Relation, Vertical-Line Test, Mapping Diagram

Huntsville City Schools
Eighth Grade Math Pacing Guide
2017-2018

3rd Nine Weeks Vocabulary

Linear Function Rule, Initial Value, Rate of Change
Congruent Figures, Image, Reflection/Flip, Rigid Motion, Rotation/Turn, Transformation, Translation/Slide, Pre-Image
Dilation, Enlargement, Reduction, Scale Factor, Similar Figures
Parallel Lines; Interior Angles; Angle-Angle Similarity, Alternate Interior Angles, Corresponding Angles, Deductive Reasoning, Exterior Angle of a Triangle, Remote Interior Angles, Transversal

4th Nine Weeks Vocabulary

Addition Property of Equality; Subtraction Property of Equality; Multiplication Property of Equality; Division Property of Equality; Substitution Property, Pythagorean Theorem, Converse of the Pythagorean Theorem, Hypotenuse, Leg of a Right Triangle, Proof, Conjecture
Cone, Cylinder, Sphere, Volume, Radius, (Surface Area, Volume, Net, Circumference, Diameter)
Scatter Plot, Patterns of Association, Positive Association, Negative Association, No Association, Linear Association, Nonlinear Association, Clusters, Outliers, Trend Line
Population, Variable, Bivariate Data, Bivariate Categorical Data, Measurement Data, Two-Way Frequency Table, Two-Way Relative Frequency Table, Row-Relative Frequency Table; Column-Relative Frequency Table