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Cliffside Park Public Schools

Department:	Course Title
Mathematics	**Algebra 1 Honors**

Textbook(s): *Algebra Integrated Mathematics – University of Chicago*		
Date:	**Unit 1, September 4 - 28**	**Unit 2, October 1 – November 1**
Essential Question(s):	• What are the different characteristics of the different types of numbers? • What is a variable, and how is it used in equations and formulas? • What is a set, and what operations can be performed on them? • What is the Pythagorean Theorem, and how is it used? • What are the basic trigonometric functions, and how are they calculated?	• How are the areas and volumes of different geometric shapes calculated? • How do you multiply and divide algebraic fractions? • How do you solve one-step multiplication and division equations and inequalities? • What is the "Multiplication Counting Principle", a factorial, a permutation, and how is each used?
Content	Uses of Variables: • Variables in Sentences • Sets and Domains • Operations With Sets • Variables in Expressions and Formulas • Square Roots and Variables • The Pythagorean Theorem • The Basics of Trigonometry	Multiplication in Algebra • Areas, Arrays, and Volumes • Special Numbers in Multiplication • Multiplying Algebraic Fractions and Rates • Products and Powers with Negative Numbers • Solving: $ax = b$ and $ax < b$ (or $> b$) • The Multiplication Counting Principle • Factorials and Permutations
Skills:	• Learn to write equations with variables • Learn what a set is, including the null or empty set, and learn how to perform operations with sets (union and intersection) • Learn how to evaluate variable expressions, including those with square roots • Learn about the Pythagorean Theorem, and how to apply it • Learn basic trigonometric functions (sine, cosine, and tangent), and their relationship to right triangles	• Learn how to calculate area and volume, even of oddly shaped objects • Learn the Commutative and Associative Properties • Learn the Properties of "1" and "0" • Learn how to multiply, divide, and simplify terms with variables • Learn to solve simple equations and inequalities of the form: ax "=" or "<" or ">" b • Learn the Multiplication Counting Principle • Learn what factorials and permutations are, and how to do problems involving them
Standards/Benchmarks	**A-SSE-1, N-Q-1, AN3, S-Q-1, G-SRT-4, G-SRT-8**	**A-CED-1, A-REI-1, A-REI-3, A-SSE-1, S-CP-9**

Cliffside Park Public Schools

Assessments/Resources	• Tests/Notebooks • Homework • Classroom Participation	• Tests/Notebooks • Homework • Classroom Participation

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Department:	Course Title	
Mathematics	**Honors Algebra I**	
Textbook(s): *Algebra Integrated Mathematics – University of Chicago*		
Date:	**Unit 3, November 5 – December 4**	**Unit 4, December 5 – December 22**
Essential Question(s):	• What are the main arithmetic properties of Addition? • How does one solve basic equations and inequalities, including algebraic fractions? • How does one solve more advanced equations and inequalities? • What are the properties of an "Arithmetic Series"?	• What are the different arithmetic properties of Addition? • What is the Triangle Inequality Theorem, and how is it used? • What are the equations and properties of very simple lines, and what are their graphs? • How is probability using geometric objects calculated?
Content	Addition In Algebra: • Properties of Addition • Solving $ax + b = c$ • The Distributive Property and Adding Like Terms • The Distributive Property and Removing Parenthesis • Writing Linear Expressions • Adding Algebraic Fractions • Solving $ax + b < c$	Geometric Concepts and Algebra • Sums and Differences in Geometry • The Triangle Inequality Theorem • Probability and Geometric Shapes • Graphing: $x + y = k$ **and** $x – y = k$ • Horizontal and Vertical Lines
Skills:	• Learn to solve equations and inequalities of the form: $ax + b = (\text{or} <) c$ • Learn about the properties of Addition, including Commutative, Associative, Identities, and Inverses • Learn how to add algebraic expressions by getting a common denominator • Learn to solve equations and inequalities with parenthesis, by combining like terms, and using the Distributive Property • Learn about Arithmetic series: how to identify one and how to calculate the n^{th} term	• Learn to apply the Triangle Inequality Theorem to the lengths of sides of a triangle. • Learn the various arithmetic properties of "Addition", from Commutative to Associative, the Identity, Inverses, etc. • Learn to apply algebraic principles to basic geometric shapes • Learn to calculate probabilities involving geometric shapes • Learn to graph horizontal and vertical lines, plus lines of the form: $x + y = k$ **and** $x – y = k$ • Learn the equations of horizontal and vertical lines, and their basic properties • Learn how to calculate the point of intersection, if any, between one line of the form $x + y = k_1$ and a 2nd line of the form $x – y = k_2$
Standards/Benchmarks	**A-CED-1, A-REI-1, A-REI-2, A-REI-3, F-BF-1, F-BF-2, F-IF-1, F-IF-2, F-IF-3, S-CP-9**	**A-CED-2, A-SSE-1, A-SSE-2, F-IF-6, F-IF-7, F-LE-1, F-LE-5, N-RN-3, S-CP-1, S-CP-4, S-ID-7**

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Assessments/Resources	• Tests/Notebooks • Homework • Classroom Participation	• Tests/Notebooks • Homework • Classroom Participation

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Cliffside Park Public Schools

Department:	Course Title	
Mathematics	**Honors Algebra I**	
Textbook(s): *Algebra Integrated Mathematics – University of Chicago*		
Date:	**Unit 5, January 5 – February 1**	**Unit 6, February 1- February 26**
Essential Question(s):	• What are the three ways to express a linear equation? • How does one determine the equation of a line given two points, or one point and the slope or the y-intercept? • How does one solve more advanced equations and inequalities? • How does one solve more advanced word problems?	• How can ratios and proportions be used? • How can properties of exponents be used to model investments? • How would one explain the rules for negative exponents?
Content	Equations of a Line and Solving More Advanced Equations: • The Slope of a Line • Properties of Slope • Slope-Intercept Equations for Lines • Equations for Lines with a Given Point and Slope • Other Ways to write Linear Equations • Solving More Advanced Equations and Inequalities • Word Problems	Division in Algebra • Rates/Ratios • Proportions and Percents • Similar Figures • Probability Exponents and Powers • Compound Interest • Exponential Growth • Properties of Exponents (including negative exponents)
Skills:	• Learn the various definitions of slope • Learn the properties of the slope-intercept form of a line • Learn the other ways to represent a line (point-slope and Standard Form) • Determine the equation of a line given two points, or given one point and either the slope or y-intercept • Learn to solve more complex equations and inequalities with parenthesis, and variables on both sides of the equation • Learn to solve longer and more complex word problems	• Learn how to express rates and ratios (units of measure) • Learn how to set up proportions • Learn how to use proportions to solve percent problems • Learn how to use proportions with similar figures • Learn how to calculate probability of single and compound events • Learn how to apply exponents to situations involving exponential growth and decay • Learn to use properties of exponents • Learn how to simplify negative exponents
Standards/Benchmarks	**A-CED-1, A-CED-4, A-REI-1, A-REI-3, A-SSE-1, A-SSE-2, F-BF-1, F-IF-7, F-LE-2, F-LE-5**	**A-CED-1, A-REI-3, A-SSE-1, G-SRT-2, F-IF-1, F-IF-2, F-IF-8, N-Q-1, N-RN-1, S-CP-2, S-CP-9**

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Assessments/Resources	• Tests/Notebooks • Homework • Classroom Participation	• Tests/Notebooks • Homework • Classroom Participation

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Cliffside Park Public Schools

Department:	Course Title	
Mathematics	**Honors Algebra I**	
Textbook(s): *Algebra Integrated Mathematics – University of Chicago*		
Date:	**Unit 7, March 1 – March 31**	**Unit 8, April 1- April 30**
Essential Question(s):	• What is a quadratic equation? • How does the solution by quadratic formula relate to the quadratic equation's graph? • What are perfect squares?	• What is a polynomial? How is its degree determined? • What rules of exponents are used to multiply monomials, binomials, and polynomials? • What is a linear system? • When is each method of solving linear systems appropriate?
Content	Quadratic Equations and Square Roots • Graphing $y = ax^2$ and $y = ax^2 + bx + c$ • Graphing parabolas on a graphing calculator • Applying quadratic equations to projectiles • Quadratic formula • Analyzing solutions to quadratic equations • Square roots and products • Absolute value, distance, and square roots • Distances in the plane	Polynomials • Properties of polynomials • Adding and subtracting polynomials • Multiplying monomials, binomials, and polynomials • Special binomial products Linear Systems • Solving systems by graphing • Solving systems by substitution • Solving systems by elimination • Word problems • Systems of inequalities
Skills:	• Learn how to graph parabolas and identify properties (vertex, axis of symmetry, concavity, intercepts, max/min) • Learn how to graph quadratic equations on a graphing calculator • Learn how to use a graphing calculator to find all listed properties above • Learn how to interpret quadratic equations in relation to projectiles • Learn how to use the quadratic equation and link it to x-intercepts on a graph • Learn how to describe solutions to quadratic equations without solving • Learn how to simplify radicals using perfect squares • Learn how to find the distance between two points in a plane	• Learn to distinguish between different types of polynomials (monomials, binomials) • Learn how to determine the degree of a polynomial • Learn how to add and subtract polynomials • Learn how to multiply different polynomials (use FOIL) • Learn how to recognize difference of 2 squares • Learn to recognize systems • Learn how to solve systems by the methods of graphing, substitution, and elimination • Learn how to interpret no solutions and infinite solutions by each method • Learn how to apply systems to word problems • Learn how to graph and interpret systems of linear inequalities

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Standards/Benchmarks	**A-APR-3, A-CED-1, A-CED-2, A-REI-1, A-REI-4, F-BF-1, A-IF-4, A-IF-5, A-IF-7**	**A-APR-1, A-REI-5, A-REI-6, A-REI-7, A-REI-11, A-REI-5, A-REI-6**
Assessments/Resources	• Tests/Notebooks • Homework • Classroom Participation	• Tests/Notebooks • Homework • Classroom Participation

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Cliffside Park Public Schools

Department:	Course Title	
Mathematics	**Honors Algebra I**	
Textbook(s): *Algebra Integrated Mathematics – University of Chicago*		
Date:	**Unit 9, May 1 – May 31**	**Unit 10, June 1 - 15**
Essential Question(s):	• What are three ways to factor? • How can a quadratic equation be solved by factoring? • How does a solution by factoring relate to a solution by Quadratic formula? • What is the difference between a rational and an irrational solution?	• What is a function? • How can a function's domain and range be found? • What are the 3 main trigonometric functions?
Content	Factoring • Factoring by GCF • Factoring $x^2 + bx + c$ and $ax^2 + bx + c$ • Factoring by grouping • Solving quadratic equations by factoring • Rational numbers and irrational numbers	Functions • Recognizing functions • Function notation • Absolute value functions • Domain and range • Trigonometric functions
Skills:	• Learn how to factor by GCF • Learn how to factor trinomials • Learn how to factor by grouping • Learn how to solve quadratic equations by factoring • Learn how to relate the solutions of quadratic equations to their graphs • Learn to distinguish between rational and irrational solutions to quadratic equations	• Learn how to identify functions • Learn how to evaluate functions • Learn how to graph absolute value functions • Learn how to describe a functions; domain and range • Learn how to calculate and apply trigonometric functions
Standards/Benchmarks	**A-CED-1, A-REI-2, A-REI-4, A-SSE-1, A-SSE-2, A-SSE-3, B-IF-4, B-IF-5, B-IF-6, B-IF-7, B-IF-8**	**A-CED-2, A-SSE-1, F-IF-1, F-IF-2, F-IF-3, F-IF-4, F-IF-5, F-IF-6, B-TF-2, B-TF-4**

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Differentiation/Accommodations/Modifications

Gifted and Talented	English Language Learners	Students with Disabilities	Students at Risk of Failure
(content, process, product and learning environment) **Extension Activities** Conduct research and provide presentation of cultural topics. Design surveys to generate and analyze data to be used in discussion. Debate topics of interest / cultural importance. Authentic listening and reading sources that provide data and support for speaking and writing prompts. Exploration of art and/or artists to understand society and history. **Anchor Activities** Use of Higher Level Questioning Techniques Provide assessments at a higher level of thinking	**Modifications for Classroom** Assign a peer helper in the class setting Use Smartphone as dictionary Use Dictionary Use materials in native language, if available **Modifications for Homework/Assignments** Modified Assignments Native Language Translation (peer, online assistive technology, translation device, bilingual dictionary) Extended time for assignment completion as needed Highlight key vocabulary Use graphic organizers **Modifications for Assessments** Extended time on classroom tests and	***(appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team)*** **Modifications for Classroom** Pair visual prompts with verbal presentations Ask students to restate information, directions, and assignments. Repetition and and practice Model skills / techniques to be mastered. Extended time to complete class work Provide copy of class notes Preferential seating to be mutually determined by the student and teacher	**Modifications for Classroom** Pair visual prompts with verbal presentations Ask students to restate information, directions, and assignments. Repetition and and practice Model skills / techniques to be mastered. Extended time to complete class work Provide copy of classnotes Preferential seating to be mutually determined by the student and teacher Student may request to use a computer to complete assignments.

	quizzes. Student may take/complete tests in an alternate setting as needed. Restate, reread, and clarify directions/questions Use dictionary or approved electronic device	Student may request to use a computer to complete assignments. Establish expectations for correct spelling on assignments. Extra textbooks for home. Student may request books on tape / CD / digital media, as available and appropriate. Assign a peer helper in the class setting Provide oral reminders and check student work during independent work time Assist student with long and short term planning of assignments Encourage student to proofread assignments and tests Provide regular parent/ school communication	Establish expectations for correct spelling on assignments. Extra textbooks for home. Student may request books on tape / CD / digital media, as available and appropriate. Assign a peer helper in the class setting Provide oral reminders and check student work during independent work time Assist student with long and short term planning of assignments Encourage student to proofread assignments and tests Provide regular parent/ school communication

		Teachers will check/sign student agenda daily Student requires use of other assistive technology device **Modifications for Homework and Assignments** Extended time to complete assignments. Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases. Provide the student with clearly stated (written) expectations and grading criteria for assignments. **Modifications for Assessments** Extended time on classroom tests and quizzes.	Teachers will check/sign student agenda daily Student requires use of other assistive technology device **Modifications for Homework and Assignments** Extended time to complete assignments. Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases. Provide the student with clearly stated (written) expectations and grading criteria for assignments. Implement RAFT activities as they pertain to the types / modes of communication (role, audience, format, and topic).

		Student may take/complete tests in an alternate setting as needed. Restate, reread, and clarify directions/questions Distribute study guide for classroom tests. Establish procedures for accommodations / modifications for assessments	**Modifications for Assessments** Extended time on classroom tests and quizzes. Student may take/complete tests in an alternate setting as needed. Restate, reread, and clarify directions/questions Distribute study guide for classroom tests. Establish procedures for accommodations / modifications for assessments.