

WAUCONDA SCHOOL DISTRICT 118

UNIT PLANNING ORGANIZER

Subject: Algebra I

Unit: Solving Equations and Inequalities

Pacing: 12 -14 days

STAGE 1 – DESIRED RESULTS

Essential Questions:

- Using variables, how can you represent quantities, patterns, and relationships?
- How are properties related to algebra?
- How are different types of numbers arranged in sets?
- Can equations that appear to be different be equivalent?
- How can you solve equations?
- Can inequalities that appear to be different be equivalent?
- How can you solve inequalities?

Big Ideas:

- Students will learn to write and evaluate expressions with unknown values
- Students will use quantities to form expressions
- Students will calculate effectively using the order of operations
- Students will use properties to simplify expressions
- Students will find equivalent equations using inverse operations.
- Students will solve equations using addition, subtraction, multiplication and division.
- Students will use the distributive property to simplify expressions and solve equations.
- Students will learn to write and graph inequalities.
- Students will use properties to generate equivalent inequalities.
- Equivalent inequalities are generated by using the properties of inequalities.
- Inequality symbols are flipped when multiplying or dividing both sides of an inequality by a negative number.

CCSS (Priority Standards):

- A.SSE.1, A.ASSE.1.a, N.NRN.3, A.SSE.1.a, A.CED.1, A.REI.1, A.CED.2, A.REI.10
A.CED.1, A.REI.3, N.Q.1, A.CED.4, N.Q.2, A.SSE.1.b

STAGE 2 – EVIDENCE

Concepts (What students need to know)	Performance Tasks (What students will be able to do)	21st Century Skills
• variables in Algebra • variables in order of operations • exponents and powers • writing verbal phrases • problem solving plans • addition/subtraction of real numbers • multiplication/division of real numbers • simplify positive and negative values • distributive properties • solve equations using inverse operations ○ 1-step with addition and subtraction ○ 1-step with multiplication and division ○ 2- step with inverse operations ○ multi-step solving • literal equations • Work with sets • Unions and intersections • Solve single step and multi-step inequalities • Solve compound inequalities • Solve absolute value inequalities	• compare and order numbers • simplify expressions using order of operations • simplify expressions with addition, subtraction, multiplication and division • work with functions, table of values • simplify expressions involving exponents • classify and use real numbers • add, subtract, multiply and divide integers • compare and order; add and subtract rational numbers • simplify expressions using the Distributive Property • write linear equations using a table • translate sentences into equations • translate equations into sentences • solve equations by addition/subtraction • solve equations by multiplication/division • solve equations involving more than one operation • solve equations involving consecutive integers • solve equations with the variable on each side • solve equations involving grouping symbols • compare ratios • solve proportions	Students will learn to use linear equations in one variable to solve mixture problems, to determine the best buy for concert tickets and music download services, and to represent constant rate problems. Students will use formulas and literal equations to solve real world problems involving distance and measurement. Students will learn to interpret data within the contexts of real-world problems, such as comparing costs of purchasing roses, comparing shades of paint, and finding the minimum and maximum costs for hotel rooms

	• find a percent of change • solve equations for a given variable (literal equations) • translate inequalities into sentences • solve inequalities by addition/subtraction • solve inequalities by multiplication/division • solve inequalities involving more than one operation • graph the solution of the inequality on a number line • represent the solution in interval notation • solve inequalities with the variable on each side • solve inequalities involving grouping symbols • solve absolute value inequalities	
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Common Formative/Summative Assessments:

- pre and post test (ten multiple choice questions)
- written post test

Interim Assessments (Informal Progress Monitoring checks):

- question and answer
- daily warm up
- daily homework

Modified Common Assessments:

Topic 1 Test (per IEP)

Modified Interim Assessments:

STAGE 3 – LEARNING PLAN (INSTRUCTIONAL PLANNING)

Suggested Resources/Materials/Informational Texts

**Pearson enVision Algebra I Common Core
MXL homework assignments through Savvas
calculator**

Suggested Research-based Effective Instructional Strategies

Identifying Similarities and Differences - The ability to break a concept into its similar and dissimilar characteristics allows students to understand (and often solve) complex problems by analyzing them in a more simple way. Teachers can either directly present similarities and differences, accompanied by deep discussion and inquiry, or simply ask students to identify similarities and differences on their own. While teacher-directed activities focus on identifying specific items, student-directed activities encourage variation and broaden understanding, research shows.

Summarizing and Note Taking - These skills promote greater comprehension by asking students to analyze a subject to expose what's essential and then put it in their own words. According to research, this requires substituting, deleting, and keeping some things and having an awareness of the basic structure of the information presented.

Cues, Questions, and Advance Organizers Cues - Questions, and advance organizers help students use what they already know about a topic to enhance further learning. Research shows that these tools should be highly analytical, should focus on what is important, and are most effective when presented before a learning experience

Cooperative Learning - Research shows that organizing students into cooperative groups yields a positive effect on overall learning. When applying cooperative learning strategies, keep groups small and don't overuse this strategy-be systematic and consistent in your approach.

Reinforcing Effort and Providing Recognition - Effort and recognition speak to the attitudes and beliefs of students, and teachers must show the connection between effort and achievement. Research shows that although not all students realize the importance of effort, they can learn to change their beliefs to emphasize effort.

Taken from: Marzano's Nine Instructional Strategies for Effective Teaching and Learning

Academic Vocabulary/ Word Wall	Enrichment/Extensions/ Modifications
Essential Vocabulary: additive inverse algebraic expressions coefficient equivalent expressions evaluate integers like terms order of operations real numbers simplify term variable Worth-Knowing Vocabulary:	