



Marietta City Schools
2023–2024 District Unit Planner.

Grade 8 Honors Mathematics

Unit title	Unit 1: Investigating Linear Expressions, Equations, and Inequalities in One Variable	MYP year	3	Unit duration (hrs)	22.5 hours <i>MMS- (4.5 hours per week)</i>
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Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GA DoE Standards

Standards

8.PAR.3: Create and interpret expressions within relevant situations. Create, interpret, and solve linear equations and linear inequalities in one variable to model and explain real phenomena.

8.MP: Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals.

MCS.Gifted.S2D. Apply components of creative thinking in finding, solving, and evaluating solutions to authentic real-world problems and dilemmas.

Expectations		Evidence of Student Learning (not all inclusive; see Grade Level Overview for more details)	
8.PAR.3.1	Interpret expressions and parts of an expression, in context, by utilizing formulas or expressions with multiple terms and/or factors.	Fundamentals <ul style="list-style-type: none"> Students should build on their prior knowledge of understanding the parts of an expression to extend their understanding to more complex expressions with multiple terms and/or factors. 	Terminology <ul style="list-style-type: none"> Parts of an expression include terms, factors, coefficients, and operations.
8.PAR.3.2	Describe and solve linear equations in one variable with one solution ($x = a$), infinitely many solutions ($a = a$), or no solutions ($a = b$). Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	Strategies and Methods <ul style="list-style-type: none"> Students should use algebraic reasoning in their descriptions of the solutions to linear equations. Building upon skills from Grade 7, students combine like terms on the same side of the equal sign and use the distributive property to simplify the equation when solving. Emphasis in this standard is also on using rational coefficients. Solutions of certain equations may elicit infinitely many or no solutions. 	
8.PAR.3.3	Create and solve linear equations and inequalities in one variable within a relevant application.	Strategies and Methods <ul style="list-style-type: none"> Students should use algebraic reasoning in their descriptions of the solutions to linear equations. Include linear equations and inequalities with rational number coefficients and whose solutions require expanding expressions using the distributive property and collecting like terms. 	
8.PAR.3.4	Using algebraic properties and the properties of real numbers, justify the steps of a one-solution equation or inequality.	Strategies and Methods <ul style="list-style-type: none"> Students should justify their own steps, or if given two or more steps of an equation, explain the progression from one step to the next using properties. 	
8.PAR.3.5	Solve linear equations and inequalities in one variable with coefficients represented by letters and explain the solution based on the contextual, mathematical situation.	Strategies and Methods <ul style="list-style-type: none"> Students should use algebraic reasoning to solve linear equations and inequalities in one variable. 	Example <ul style="list-style-type: none"> Given $ax + 3 = 7$, solve for x.
8.PAR.3.6	Use algebraic reasoning to fluently manipulate linear and literal equations expressed in various forms to solve relevant, mathematical problems.	Strategies and Methods <ul style="list-style-type: none"> To achieve fluency, students should be able to choose flexibly among methods and strategies to solve mathematical problems accurately and efficiently. Students should rearrange formulas to highlight a quantity of interest using the same reasoning as in solving equations. Interpret and explain the results. 	Example <ul style="list-style-type: none"> Find the radius given the formula $V = \pi r^2 h$ by rearranging the equation to solve for the radius, r.

Concepts/Skills to support mastery of standards

- 8.PAR.3.1 Interpret and utilize formulas or expressions.
- 8.PAR.3.2 Describe and solve linear equations in order to demonstrate a simpler form of equivalent equations.
- 8.PAR.3.3 Create and solve linear equations and inequalities for application.
- 8.PAR.3.4 Applying algebraic properties in order to justify steps for one-solution equations and inequalities.
- 8.PAR.3.5 Solve linear equations and inequalities in one variable, and explain the contextual meaning in a scenario.
- 8.PAR.3.6 Apply algebraic reasoning in various forms to solve linear and literal equations.

[K12 Mathematics Glossary](#)

Algebraic properties	Inverse Operations	Coefficients	Linear Equation	Equation	Linear Inequality
Equivalent Equation	Literal Equation	Expression	Terms	Factors	Variable

Notation

Key concept	Related concept(s)	Global context
Patterns	Justification. Simplification	Identities and relationships

Statement of inquiry

Interpreting real life scenarios will enhance our understanding of patterns.

Inquiry questions

Factual— How can we simplify expressions? How can we use inverse operations to solve equations and inequalities?

Conceptual— How are order of operations related to solving equations and equalities?

Debatable - What is the best form of representing numbers and expressions?

MYP Objectives	Assessment Tasks	
<p><i>What specific MYP objectives will be addressed during this unit?</i></p>	<p>Relationship between summative assessment task(s) and statement of inquiry:</p>	<p><i>List of common formative and summative assessments.</i></p>
<p>Criteria B: Investigating Patterns</p>	<p>Students will interpret real life scenarios to enhance their understanding of patterns.</p>	<p><u>Formative Assessment(s):</u></p> <ul style="list-style-type: none"> ● Unit 1 CFA <p><u>Summative Assessment(s):</u></p> <ul style="list-style-type: none"> ● Unit 1 Summative Assessment ● Unit 1 Retake/Retest ● MYP Assessment: Solving Linear Equations and Inequalities Choice Board Project
<p>Approaches to learning (ATL)</p>		
<p>Need: Give and receive meaningful feedback. Category: Thinking Cluster: Critical Thinking, Creative Thinking Skill Indicator: Analyzing and evaluating issues and ideas and Utilizing skills and knowledge in multiple contexts</p> <p>Design Cycle Transdisciplinary: Inquiring and Analyzing, Developing Ideas, Creating a Solution, Evaluation</p>		

Learning Experiences

Add additional rows below as needed.

Objective or Content	Learning Experiences	Personalized Learning and Differentiation
<p>8.PAR.3: Create and interpret expressions within relevant situations. Create, interpret, and solve linear equations and linear inequalities in one variable to model and explain real phenomena.</p> <ul style="list-style-type: none">● 8.PAR.3.1 Interpret and utilize formulas or expressions.● 8.PAR.3.4 Applying algebraic properties in order to justify steps for one-solution equations and inequalities.● 8.PAR.3.5 Solve linear equations and inequalities in one variable, and explain the contextual meaning in a scenario.	<p>Family Game Plan</p> <p>https://lor2.gadoe.org/gadoe/file/963a6864-c763-4888-a619-721e5986872a/1/Family-Game-Plan-Student-Reproducible-8U1.pdf (Student Document)</p> <p>https://lor2.gadoe.org/gadoe/file/963a6864-c763-4888-a619-721e5986872a/1/Family-Game-Plan-8U1.pdf (Teacher Guide)</p>	<p>In this learning plan, students will solve a series of linear equations word problems to help a family choose appropriate game system plans for their needs. Students utilize the family's budget to create and analyze linear equations to represent different game system plans. Students will justify their steps to solving these equations and make sense of the different parts of the expression.</p>

Content Resources

Intervention Resources

[Balancing Act](#) - Form and solve simple linear equations. Interpret expressions

[Savvas Math 8 Correlation Document](#) (see pgs. 8 - 12)

Savvas Lessons

- Lesson 2-1 (Combine Like Terms to Solve Equations)
- Lesson 2-2 (Solve Equations with Variables on Both Sides)
- Lesson 2-3 (Solve Multi-Step Equations)
- Lesson 2-4 (Equations with No Solutions and Infinitely Many Solutions)