



Marietta City Schools
2023–2024 District Unit Planner

Honors Algebra: Concepts & Connections

Unit title	Unit 2: Analyzing Linear Inequalities	MYP year	4	Unit duration (hrs)	7.5 hours
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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*: (teach prior to A.PAR.4.1) 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.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.

A.PAR.4: Create, analyze, and solve linear inequalities in two variables and systems of linear inequalities to model real-life phenomena.

A.PAR.4.1 Create and solve linear inequalities in two variables to represent relationships between quantities including mathematically applicable situations; graph inequalities on coordinate axes with labels and scales.

Fundamentals

- Students should be given the opportunity to explore the difference between solid lines and dashed lines through exploration on an interactive graph.
- Students should have had opportunities to create and solve linear equations and inequalities throughout middle school mathematics.
- Students should recognize that the graph of a linear inequality in two variables is a half-plane

Strategies and Methods

- When necessary, students should be able to rewrite the inequality in various forms, such as slope-intercept form, for graphing.
- Students should be given opportunities to solve linear inequalities graphically and algebraically. These linear inequalities should represent realistic, real-life phenomena.

A.PAR.4.2 Represent constraints of linear inequalities and interpret data points as possible or not possible.

Terminology

- Possible data points are solutions to the inequality or inequalities; data points that are not possible are non-solutions to the inequality or inequalities.

A.PAR.4.3 Solve systems of linear inequalities by graphing, including systems representing a mathematically applicable situation.

Fundamentals

- Ensure constraints are represented.
- Students in Grade 8 mathematics modeled with and solved systems of linear equations to solve real-life problems.

Strategies and Methods

- Students should be provided opportunities to use technology tools to solve systems of linear inequalities graphically.

A.MM.1: Apply mathematics to real-life situations; model real-life phenomena using mathematics

A.MM.1.1 Explain applicable, mathematical problems using a mathematical model.

Fundamentals

- Students should be provided with opportunities to learn mathematics in the framework of real-life problems.
- Mathematically applicable problems are those presented in which the given framework makes sense, realistically and mathematically, and allows for students to make decisions about how to solve the problem (model with mathematics).

A.MM.1.4 Use various mathematical representations and structures with this information to represent and solve real-life problems.

Strategies and Methods

- Students should be able to fluently navigate between mathematical representations that are presented numerically, algebraically, and graphically.
- For graphical representations, students should be given opportunities to analyze graphs using interactive graphing technologies.

Concepts/Skills to support mastery of standards

- Students will use formal function notation to represent linear functions.
- Students will identify key characteristics of linear graphs.
- Students will make informal comparisons of linear and nonlinear functions using parent graphs.

Vocabulary

Boundary Line	Inequality	Linear Function	Solution Set
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Notation

$<$, $>$, \leq , \geq - Inequality Symbols

Key concept	Related concept(s)	Global context
Relationships- Refers to the connections between quantities, properties or concepts and these connections may be expressed as models, rules or statements.	Models, Systems, and Validity	Scientific + Technical Innovation- How humans use their understanding of scientific principles.

Statement of inquiry

Relationships between representations of change can help us use scientific principles to solve problems.

Inquiry questions

Factual—

- What is an inequality?
- What symbols are used to represent inequalities?
- What is a solution to a linear inequality?
- What is a non-solution to a linear inequality?

Conceptual—

How do you write a linear inequality given a graph or real - world context?
 How do you model linear inequalities given an inequality or real - world context?
Debatable-
 Is one solution more valid than another given appropriate real - world relationships for systems of inequalities?

MYP Objectives	Assessment Tasks	
<i>What specific MYP objectives will be addressed during this unit?</i>	Relationship between summative assessment task(s) and statement of inquiry:	<i>List of common formative and summative assessments.</i>
MYP C - MVP 5.2 reflection	Summative assessment will have MYP D that directly pulls products and processes into student evidence.	Formative Assessment MYP C - MVP 5.2 reflection Summative Assessment(s): Unit 2 Assessment MYP D - Concerts, Accounts & Advertisements

Approaches to learning (ATL)

Category: Communication Skills
Cluster: Affective
Skill Indicator: Demonstrate persistence and perseverance
Learning Activity: Too Big or Not Too Big? (Mathematics Vision Project HONORS- Module 5.2)

Category: Thinking Skills
Cluster: Transfer
Skill Indicator: Combine knowledge, understanding and skills to create products or solutions
Learning Activity: Pampering & Feeding Time (Mathematics Vision Project HONORS - Module 5.4)

Learning Experiences
 Add additional rows below as needed.

Objective or Content	Learning Experiences	Personalized Learning and Differentiation
<ul style="list-style-type: none"> A.PAR.4.1 Create and solve linear inequalities in two variables to represent relationships between quantities including mathematically 	Too Big or Not Too Big? - Mathematics Vision Project HONORS Module 5.2 Description: Students will apply knowledge that a solution to a linear inequality in two variables could involve not only points on a line, but	Learning Support could include previewing vocabulary and symbols. Extension opportunities may include students creating their own example to share with class.

<p>applicable situations; graph inequalities on coordinate axes with labels and scales.</p> <ul style="list-style-type: none"> ● A.PAR.4.2 Represent constraints of linear inequalities and interpret data points as possible or not possible. ● A.PAR.4.3 Solve systems of linear inequalities by graphing, including systems representing a mathematically applicable situation. 	<p>that points of a region bounded by a line. Students will then work within the context of being a pet sitter to examine and extend ideas, strategies and representations related to creating, graphing and interpreting linear inequalities in two variables.</p> <p>Learning Goal(s)</p> <ul style="list-style-type: none"> ● I can determine solutions and nonsolutions given the graph of a two-variable inequality. ● I can describe the graph that represents the solutions to a linear inequality in two variables. ● I can graph linear inequalities in two variables. 	
<ul style="list-style-type: none"> ● A.PAR.4.2 Represent constraints of linear inequalities and interpret data points as possible or not possible. 	<p>Pampering & Feeding Time - Mathematics Vision Project HONORS Module 5.4</p> <p>Description: Students will examine multiple constraints as small business owners. This learning experience is an opportunity for students to apply relevant mathematical ideas in a new setting</p> <p>Learning Goal(s)</p> <ul style="list-style-type: none"> ● I can create an inequality in two variables to represent relationships between quantities. ● I can represent a constraint of linear inequalities. ● I can graph a system of linear inequalities in two variables. 	<p>An extension of this learning experience could include students creating a scenario where using an inclusive inequality (\leq, \geq) would not be appropriate.</p>

Content Resources

Textbook Correlation: enVision A|G|A - Algebra 1

A.FGR.4.1 - Lesson 4-4

A.FGR.4.2 - Lesson 4-4

A.FGR.4.3 - Lesson 4-5

EdPuzzle

***8.PAR.3** - [Inequality Basics](#)

A.FGR.4.3 - [Systems of Linear Inequalities](#)

YouTube

ATL Skills - [TEDEd](#)

***8.PAR.3** - [Erin's Essential Questions Playlist: Inequalities in 1 Variable](#)

A.FGR.4 - [Erin's Essential Questions Playlist: Linear Inequalities](#)

Khan Academy