



**Marietta City Schools**  
**2023–2024 District Unit Planner**

*Algebra: Concepts & Connections*

<b>Unit title</b>	Unit 2: Analyzing Linear Inequalities	<b>MYP year</b>	4	<b>Unit duration (hrs)</b>	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**

**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 Identify and understand connections and associations between properties, objects, people, and ideas - including the human community's connections with the world in which we live.	Models, Systems, and Validity	Scientific and Technical Innovation - Systems, models, methods; products, processes and solutions
Statement of inquiry		
Relationships formed by modeling systems validate products, processes, and solutions.		
Inquiry questions		
Factual— <ul style="list-style-type: none"><li>• What is an inequality?</li><li>• What symbols are used to represent inequalities?</li><li>• What is a solution to a linear inequality?</li></ul>		

- 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 <b>objectives</b> will be addressed during this unit?</i>	<i><b>Relationship</b> between summative assessment task(s) and statement of inquiry:</i>	<i>List of common formative and summative assessments.</i>
MYP D - Concerts, Accounts, and Advertisements	Summative assessment will have MYP D that directly pulls products and processes into student evidence.	<p><b><u>Formative Assessment(s):</u></b></p> <p>Mid Unit Check</p> <p><b><u>Summative Assessment(s):</u></b></p> <p>Unit 2 Assessment - Milestone Type Questions</p> <p>MYP D - Concerts</p>
Approaches to learning (ATL)		
<p><b>Category:</b> Thinking Skills</p> <p><b>Cluster:</b> Transfer</p> <p><b>Skill Indicator:</b> Combine knowledge, understanding and skills to create products or solutions</p> <p><b>Learning Activity:</b> MYP D - Concerts, Accounts, and Advertisements</p>		

<b>Learning Experiences</b> Add additional rows below as needed.		
Objective or Content	Learning Experiences	Personalized Learning and Differentiation
<ul style="list-style-type: none"> <li>● <b>A.PAR.4.1</b> 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.</li> <li>● <b>A.PAR.4.2</b> Represent constraints of linear inequalities and interpret data points as possible or not possible.</li> </ul>	<b>Graphing Linear Inequalities in Two Variables (Part 1) - Fair is Coming to Town</b> <b>Description:</b> In this learning plan, students will learn that a solution to a linear inequality in two variables could involve not only points on a line, but that points of a region bounded by a line. Students will begin by observing that solutions and nonsolutions of an inequality occupy different regions of a coordinate plane and discover that the inequality represents a half-plane. Students will then write inequalities and discover the linear equations that divide those regions. <b>Learning Goal</b> <ul style="list-style-type: none"> <li>• I can determine solutions and nonsolutions given the graph of a two-variable inequality.</li> <li>• I can describe the graph that represents the solutions to a linear inequality in two variables.</li> </ul>	Remedial support can be given by focusing on graphing linear equations either using technology or peg boards. Language support can be given by previewing key words and context.
<ul style="list-style-type: none"> <li>● <b>A.PAR.4.3</b> Solve systems of linear inequalities by graphing, including systems representing a mathematically applicable situation.</li> </ul>	<b>Solutions to Systems of Linear Inequalities in Two Variables - Remember These Situations? (Banking, Concert, Advertising)</b> <b>Description:</b> In this learning plan, students will be writing linear inequalities that represent constraints in situations and graphing the solution regions. To prepare for that work, students will review writing and graphing an equation that represents a situation. <b>Learning Goal:</b> <ul style="list-style-type: none"> <li>• I can graph a linear inequality using the boundary line and the correct solution region.</li> <li>• I can interpret solutions of linear inequalities in context.</li> <li>• I can write inequalities in two variables given real-world constraints.</li> </ul>	Remedial support can be given by writing linear equations from real world application. Language support can be given by drawing context clues from the problems provided. IF necessary adjust to culturally appropriate situations.
Content Resources		
<b>Textbook Correlation: enVision A G A - Algebra 1</b>  <b>A.FGR.4.1</b> - Lesson 4-4 <b>A.FGR.4.2</b> - Lesson 4-4 <b>A.FGR.4.3</b> - Lesson 4-5		