



Marietta City Schools

District Unit Planner

Everything on the unit planner must be included on the unit curriculum approval statement.

Accelerated Grade 6/7 Mathematics

Unit title	Unit 5: One Step Equations and Inequalities (GaDOE Grade 6 Unit 4)	MYP year	1	Unit duration (hrs)	20 Hours
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Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GSE Standards

Standards

MGSE6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

MGSE6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

MGSE6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers.

MGSE6.EE.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

MGSE6.EE.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another.

- Write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable.
- Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d=65t$ to represent the relationship between distance and time.*

MGSE7.EE.4a Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*

MGSE7.EE.4b Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example, as a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.*

MGSE7.EE.4c Solve real-world and mathematical problems by writing and solving equations of the form $x+p = q$ and $px = q$ in which p and q are rational numbers.

MGSE6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems utilizing strategies such as tables of equivalent ratios, tape diagrams (bar models), double number line diagrams, and/or equations.

MGSE6.RP.3a Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

MGSE6.RP.3b Solve unit rate problems including those involving unit pricing and constant speed.

MGSE6.RP.3c Find a percent of a quantity as a rate per 100 (e.g. 30% of a quantity means 30/100 times the quantity); given a percent, solve problems involving finding the whole given a part and the part given the whole

MGSE6.RP.3d Given a conversion factor, use ratio reasoning to convert measurement units within one system of measurement and between two systems of measurements (customary and metric); manipulate and transform units appropriately when multiplying or dividing quantities. For example, given 1 in. = 2.54 cm, how many centimeters are in 6 inches?

Concepts/Skills to be Mastered by Students

- Represent, analyze, and generalize a variety of patterns with tables, graphs, words, and, when possible, symbolic rules.
- Relate and compare different forms of representation for a relationship.
- Use values from specified sets to make an equation or inequality true.
- Develop an initial conceptual understanding of different uses of variables.
- Graphs can be used to represent all of the possible solutions to a given situation.
- Many problems encountered in everyday life can be solved using proportions, equations or inequalities.
- Students will solve one-step equations.

Key concept	Related concept(s)	Global context
Logic A method of reasoning and a system of principles used to build arguments and reach conclusions.	Pattern Model Measurement	Globalization and Sustainability

Statement of inquiry

Expressions, equations, and inequalities, communicate real world scenarios through symbols, numbers, and algebraic thinking.

Inquiry questions

Factual— How do you identify equations and variables? How do you use substitution to find solutions to equations? How do you write one variable addition and subtraction equations?

Conceptual— How are word expressions that are translated into algebraic expressions communicating the same information? What strategies help me to understand and represent real life situations mathematically?

Debatable— Why do solutions to real world algebraic problems not always what they seem?

MYP Objectives	Assessment Tasks	
<i>What specific MYP objectives will be addressed during this unit?</i>	<i>Relationship between summative assessment task(s) and statement of inquiry:</i>	<i>List of common formative and summative assessments.</i>
<p>Criterion C: Communication</p> <p>MGSE.6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers</p>	<p>Assessments will expect students to communicate a real world situation in symbolic format using symbols and numbers. They will have to interpret statements concerning various situations algebraically and communicate it in written format.</p> <p>Write and Solve Unit 4.4 Enrichment activity taken from Savvas. Students work in groups of two to four to interpret a situation, define the variables, and represent the situation in the form of an equation. They will solve the equation to provide the answer. Students will examine the structure of mathematical concepts involving geometry and the principles involved to determine the pattern used in writing and solving the equation. Teachers can expect to formatively assess student mastery over 6th grade standard EE. 7.</p> <p><i>Heterogeneous grouping will allow all students to be supported during this activity. The goal of this activity is to engage students in strengthening their understanding of how to communicate a situation algebraically. For groups that are struggling, the teacher can be an active participant, modeling the thought process behind the activity.</i></p>	<p>Formative Assessment(s):</p> <p>Unit 4 Mid-unit Checkpoint</p> <p>CFA</p> <p>Summative Assessment(s):</p> <p>MYP- Equation Enrichment from Saavas - Enrichment activity from Unit 4 lesson 4, Write and Solve Equations</p> <p>Unit 4 One Step Equations and Inequalities Test</p>
Approaches to learning (ATL)		
<p>Give and receive meaningful feedback Use models and simulations to explore complex systems and issues Category: Thinking Cluster: Critical Thinking, Creative Thinking & Transfer Skill Indicator: Use models and simulations to explore complex systems and issues</p>		

Learning Experiences

Add additional rows below as needed.

Objective or Content	Learning Experiences	Personalized Learning and Differentiation
<p>MGSE6.EE.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another.</p> <p>a. Write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable.</p> <p>b. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.</p>	<p><u>Spheros Coding Activity-</u></p> <p>Students will learn how to code the Spheros Bolts in various ways in order to investigate the connection between speed (rate), time, and distance. Tasks that are conducted with the Spheros focus on the act of programming the bots and then relating two of the variables while holding the third variable constant. As students observe the change in one variable, they will make connections to the effect it has on the other variable.</p> <p>Students will also be tasked to code the Spheros Bolts in order to use programming and measurement to navigate a maze autonomously. This relates to their science space standards as they will code the bots through a maze navigating craters on the moon or Mars like the Mars rover is programmed.</p>	<p>Students will be grouped with others to support their understanding. For groups that are struggling, the teacher can be an active participant, modeling the thought process behind the activity.</p> <p>The lessons are scaffolded to allow students to move from beginner level understanding to more advanced levels.</p>
<p>Content Resources</p>		