



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 2: Rational Explorations: Numbers and Their Opposites (GaDOE Grade 6 Unit 7)	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.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, debits/credits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

MGSE6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

MGSE6.NS.6a Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., , and that 0 is its own opposite.

MGSE6.NS.6b Understand signs of number in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

MGSE6.NS.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

MGSE6.NS.7 Understand ordering and absolute value of rational numbers.

MGSE6NS.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.

MGSE6.NS.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts.

MGSE6.NS.7c Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

MGSE6.NS.7d Distinguish comparisons of absolute value from statements about order.

MGSE6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

MGSE6.G.3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply those techniques in the context of solving real-world mathematical problems.

Concepts/Skills to be Mastered by Students

- Understand that positive and negative numbers are used together to describe quantities having opposite directions or values.
- Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
- Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line.
- Recognize that the opposite of the opposite of a number is the number itself.
- Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane.
- Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
- Find and position integers and other rational numbers on a horizontal or vertical number line diagram. ‘
- Find and position pairs of integers and other rational numbers on a coordinate plane.
- Understand ordering and absolute value of rational numbers.
- Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
- Write, interpret, and explain statements of order for rational numbers in real-world contexts.
- Understand the absolute value of a rational number as its distance from 0 on the number line
- Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.
- Distinguish comparisons of absolute value from statements about order.
- Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane.

Vocabulary

- Percent: A fraction or ratio in which the denominator is 100. A number compared to 100.
- Proportion: An equation which states that two ratios are equal.

- Rate: A comparison of two quantities that have different units of measure
- Ratio: compares quantities that share a fixed, multiplicative relationship.
- Rational number: A number that can be written as a/b where a and b are integers, but b is not equal to 0.
- Tape diagram: A thinking tool used to visually represent a mathematical problem and transform the words into an appropriate numerical operation. Tape diagrams are linear drawings that look like a segment of tape, used to illustrate number relationships. Also known as Singapore Strips, strip diagrams, bar models or graphs, fraction strips, or length models.
- Unit Ratio: are ratios written as some number to 1.
- Quantity: is an amount that can be counted or measured.

Key concept	Related concept(s)	Global context
Relationships	Equalivalent Generalization	Identities and Relationships
Statement of inquiry		
Modeling using a logical process helps us to understand the world		
Inquiry questions		
<p>Factual—How are number lines and the coordinate plane different? What are opposites? What is absolute value? Where do I place positive and negative rational numbers on the number line? What are opposites, and how are opposites shown on a number line?</p> <p>Conceptual—When are negative numbers used and why are they important? Why is it useful for me to know the absolute value of a number? When is graphing on the coordinate plane helpful? How do I use positive and negative numbers in everyday life? How do I use positive and negative numbers to represent quantities in real-world contexts? How do statements of inequality help me place numbers on a number line? How can I use coordinates to find the distances between points? How can I use number lines to find the distances between points? How can I use absolute value to find the lengths of the sides of polygons on the coordinate plane? What do reflections and symmetry have in common? How is absolute value and order different?</p> <p>Debatable—Does a negative number always represent a negative situation?</p>		
MYP Objectives	Assessment Tasks	

What specific MYP objectives will be addressed during this unit?	Relationship between summative assessment task(s) and statement of inquiry:	List of common formative and summative assessments.
Criterion C: Communicating Criterion D: Applying Mathematics in Real-life Contexts		Formative Assessment(s): Unit 7 Mid-unit Checkpoint Summative Assessment(s): MYP-Topic 2 Performance Assessment Form A Unit 7: Rational Explorations: Numbers and Their Opposites

Approaches to learning (ATL)
Give and receive meaningful feedback Organize and depict information logically Category: Cluster: Skill Indicator:

<u>Learning Experiences</u> Add additional rows below as needed.		
Objective or Content	Learning Experiences	Personalized Learning and Differentiation
MGSE6.NS.7c Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as	Terryville Task Students will understand and interpret the absolute value of a rational number, and solve real world mathematical problems by graphing points on a coordinate plane. In this task students will have a list of objectives presented to them that they need to solve.	Students will be supported through intentional planning and implementation using the 5 Practices. Teachers will support through assessing and advancing questions and aggressive monitoring of students

<p>magnitude for a positive or negative quantity in a real world situation.</p> <p>MGSE6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</p>		<p>through the task. Students will have access to number lines, xy pegboards, and various manipulatives to support their work with absolute value.</p>
<p>MGSE6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values</p> <p>MGSE6.NS.7 Understand ordering and absolute value of rational numbers.</p>	<p>Above and Below Sea Level</p> <p>Students will better understand the position of positive and negative numbers on a number line and how they apply to the context of elevation. Interpreting statements involving location and absolute value are included in the activity.</p>	<p>Students may be grouped so that peer support is provided and will have access to numbers lines.</p>
Content Resources		