Marietta City Schools

2024–2025 District Unit Planner

Accelerated Grade 6/7 Mathematics

Unit title	Unit 2: Rational Exploration: Numbers and their Opposites	MYP year	*1*	Unit duration (hrs)	*15 hours*

Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GA DoE Standards

Standards

6.NR.3: Solve a variety of problems involving whole numbers and their opposites; model rational numbers on a number line to describe problems presented in relevant, mathematical situations.

6.NR.3.1 Identify and compare integers and explain the meaning of zero based on multiple authentic situations.

6.NR.3.2 Order and plot integers on a number line and use distance from zero to discover the connection between integers and their opposites.

6.NR.3.3 Recognize and explain that opposite signs of integers indicate locations on opposite sides of zero on the number line; recognize and explain that the opposite of the opposite of a number is the number itself.

6.NR.3.4 Write, interpret, and explain statements of order for rational numbers in authentic, mathematical situations. Compare rational numbers, including integers, using equality and inequality symbols.

6.NR.3.5 Explain the absolute value of a rational number as its distance from zero on the number line; interpret absolute value as distance for a positive or negative quantity in a relevant situation.

6.NR.3.6 Distinguish comparisons of absolute value from statements about order.

7.NR.1.1 Show that a number and its opposite have a sum of 0 (are additive inverses). Describe situations in which opposite quantities combine to make 0.

6.MP.1-8

MCS.Gifted.S2. Students will develop and utilize creative thinking through a variety of products and problem solving.
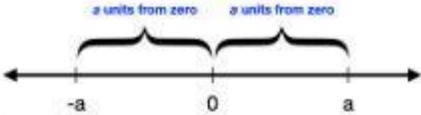
MCS.Gifted.S3C. Use a variety of strategies for solving authentic, complex, real world problems through evaluative thinking and the engineering design processes.

MCS.Gifted.S4B Recognize and examine the value of others strengths, thoughts, ideas, and feelings during collaboration.

MCS.Gifted.S4D Respectfully collaborate and effectively communicate exchanges of constructive/critical feedback.

MCS.Gifted.S6 Students will become self-directed, independent learners.

Concepts/Skills to support mastery of standards

Expectations	Evidence of Student Learning (not all inclusive; see Grade Level Overview for more details)		
6.NR.3.1 Identify and compare integers and explain the meaning of zero based on multiple authentic situations.	*Relevance and Application* • Students should be able to use numerical reasoning to explain 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). • Students should be able to use positive and negative numbers to represent quantities in authentic situations and explain the meaning of zero based on each situation. • Students should be able to interpret relevant, mathematical problems related to positive and negative numbers.	*Example* • Write −5°C > −9°C to express the fact that −5°C is warmer than −9°C.	
6.NR.3.2 Order and plot integers on a number line and use distance from zero to discover the connection between integers and their opposites.	*Strategies and Methods* • Students should have opportunities to explore this concept using visual models to develop a deeper understanding. • Number lines should be indicated both vertically and horizontally.	*Example* • Students should be able to recognize that -a is the same distance from zero as a, and therefore, are opposites of each other. 	
6.NR.3.3 Recognize and explain that opposite signs of integers indicate locations on opposite sides of zero on the number line; recognize and explain that the opposite of the opposite of a number is the number itself.	*Fundamentals* • Students should be able to explain that zero is its own opposite. • Students should be able to explain that the sign of an integer represents its position relative to zero on a number line. • Students should be able to show and explain why − (−a) = a. Which is read as, "The opposite of the opposite of a is the same as a."		
6.NR.3.4 Write, interpret, and explain statements of order for rational numbers in authentic,	*Strategies and Methods* • Students should be able to use numerical reasoning to interpret and explain the	*Terminology* • Rational numbers are numbers that can be written as a fraction where the	*Examples* • Write −3 degrees Celsius > −7 degrees Celsius to express the fact that −3 degree Celsius is warmer than −7 degrees Celsius.

	mathematical situations. Compare rational numbers, including integers, using equality and inequality symbols.	meaning of numerical statements of inequality as the relative position of two integers positioned on a number line. • Students are introduced to rational numbers. Students should connect their understanding of fractions and integers to comprehend rational numbers as numbers that can be written as a fraction where the numerator and denominator are integers.	numerator and denominator are integers.	• Interpret −8.3 > −12.3 as a statement that −8.3 is located to the right of −12.3 on a number line oriented from left to right.
6.NR.3.5	Explain the absolute value of a rational number as its distance from zero on the number line; interpret absolute value as distance for a positive or negative quantity in a relevant situation.	*Terminology* • Absolute value is a number's distance from zero (0) on a number line.	*Fundamentals* • Students should be introduced to the absolute value symbol with this learning objective, i.e., $\left\lvert -\frac{3}{4} \right\rvert$. • Students should conclude through exploration that absolute value and distance are always expressed as a positive value.	*Example* • For an account balance of −51.25 dollars, write $\lvert -51.25 \rvert = 51.25$ to describe the size of the debt in dollars.
6.NR.3.6	Distinguish comparisons of absolute value from statements about order.	*Example* • Recognize that an account balance less than −30 dollars represents a debt greater than 30 dollars.		

7.NR.1.3	Represent addition and subtraction with rational numbers on a horizontal or a vertical number line diagram to solve authentic problems.	*Strategies and Methods* • Students should represent a variety of types of rational numbers on a number line diagram presented both horizontally and vertically.

Vocabulary:

K12 Mathematics Glossary

Absolute Value	Negative Numbers	Distance	Opposite	Inequality	Positive Numbers
Integers	Rational Number	Magnitude	Sign		

Key concept	Related concept(s)	Global context
Relationships The connections and associations between properties, objects, people and ideas.	**Equivalence, Generalization**	**Identities and Relationships**

Statement of inquiry
Modeling using a logical process helps us to understand the world.

Inquiry questions

Factual

- Why is it useful for me to know the absolute value of a number?
- 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?
- How do statements of inequality help me place numbers on a number line?
- How can I use number lines to find the distances between points?

Conceptual

- How do I use positive and negative numbers to represent quantities in real-world contexts?
- How do we use the concept of absolute value to describe real-world scenarios?
- How do statements of inequality describe real-world situations?
- What kind of real-world situations have I encountered that are described by an inequality?
- How do I use positive and negative numbers in everyday life?

Debatable

- Do negative numbers describe things or situations that are negative?

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.
Criteria C (Communication) Criteria D (Applying Math to Real-World Context)	Students will understand, interpret, write, and explain the relationships between numbers: positive, negative, and rational numbers using a number line, coordinate plane, and absolute value.	**Formative Assessment(s):** Lesson quiz 2-2 **Summative Assessment(s):** Unit 2 Mid Unit Assessment (CSA) Unit 2 Summative

Approaches to learning (ATL)
Category: Social **Cluster:** Collaboration Skills **Skill Indicator:** Give and receive meaningful feedback. **Category:** Communication **Cluster:** Communication **Skill Indicator:** Organize and depict information logically

Learning Experiences		
Add additional rows below as needed.		
Objective or Content	**Learning Experiences**	**Personalized Learning and Differentiation**
● **6.NR.3.4** Write, interpret, and explain statements of order for rational numbers in authentic, mathematical situations. Compare rational numbers, including integers, using equality and inequality symbols. ● **6.NR.3.6** Distinguish comparisons of absolute value from statements about order	**Above and Below:** Students will order and plot integers on a number line and use distance from zero to discover the connection between integers and their opposites. They will use clues that involve absolute value (distance from zero) and positions relative to other integers in a real world context to correctly identify the average temperatures of planets.	Prior to the learning experience, teachers may establish mathematical learning goals in order to focus student attention on the learning. Physical number lines can be provided or drawn out to provide an extra layer of support for students in need.
Content Resources		

6-11 Savvas Correlation to 2021 standards

GaDoe Intervention Table of Tasks/Activities

Additional Resources

- **Savvas**
- **Desmos**
- **Hands-On Math**