

Enhancement Activities/Strategies for Gifted/High Ability Learners: Sample MATH Learning Plan

Big Idea/ Topic

Develop an understanding of operations with rational numbers and work with expressions and linear equations.

Standard Alignment

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

MGSE7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

MGSE7.NS.1a 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. For example, your bank account balance is -\$25.00. You deposit \$25.00 into your account. The net balance is \$0.00.

MGSE7.NS.1b Understand $p + q$ as the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative. Interpret sums of rational numbers by describing real world contexts.

MGSE7.NS.1c Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

MGSE7.NS.1d Apply properties of operations as strategies to add and subtract rational numbers.

MGSE7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

MGSE7.NS.2a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

MGSE7.NS.2b Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.

MGSE7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.

MGSE7.NS.2d Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

MGSE7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.

Advanced Research

There are MANY key words that we encounter on a daily basis that can be represented by Integer Values with a connection to number line locations. Consider the following “real-life scenario” and to help you solve the questions attached.

Jackson is shopping in a large department store with many floors. He has a full day of Christmas shopping to do! He enters the store on the middle floor from the skyway entrance and immediately goes to the credit department to check his credit! After making sure his credit is good, he goes up three floors to the Sports Department. He then goes down five floors to the ArtWork Department. He then goes up six floors to the Electronics Department. Finally, Jackson decides he has spent enough money so he goes down ten floors to the main entrance of the store, which is on the first floor. How many floors does the department store have?

Communication

Discussion Points: How can each movement be represented as an Integer values?
How could we BEST represent this situation?
Discuss and Brainstorm your options/ideas/strategies.

Critical Thinking and Critical Problem-Solving Skills

Could this be represented on a number line? Could drawing a picture help to solve? Can this process also be represented as an equation? What Integer Rules would need to be applied to solving the equation?
Be able to fully explain/justify each strategy. Using your options, decide which strategy would make the most sense to convince/prove your solution is mathematically correct...How many floors does the department store have?

Creative Thinking and Creative Problem-Solving Skills

Using the options: Number Line, Visual Picture, and writing an equation, decide which strategy would make the most sense to convince/prove your solution is mathematically correct...How many floors does the department store have?

Solve this problem using one visual representation (number line or picture) AND then write and solve the equation to algebraically prove your solution. What Integer Rules must be applied to solve the equation?

Awareness of Self—Student's Well-being

Use integer values to record your daily exercise. How can you increase your daily exercise? Set a goal and track your progress. Did you notice a relationship between the amount of exercise and your mood?