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| Student Name: | | Teacher Name: |
| Grade: AC6 | Unit #: 2B | Unit Title: Rational Operations |
| Approximate Start Date of Unit: | | Approximate End Date (and Test Date) of Unit: |

The following Statements and examples show the skills, concepts, and understandings that I will gain before the end of this unit.

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| *(Initial in Box and & Date in the Space Provided When YOU CAN ☺)* | I can describe situations in which opposite quantities combine to make 0. I can represent and explain how a number and its opposite have a sum of 0 and are additive inverses. |
| EXAMPLES:   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 1. On the number line above, the numbers a and b are the same distance from 0. What is the sum of a + b? Explain how you know. | Graph th   1. Explain the meaning of: *“The opposite of a sum is the sum of its opposites.”* Use a specific math example.  |  |  |  |  | | --- | --- | --- | --- | | Rational Number | Rational Number | Sum | Opposite of the Sum | |  |  |  |  |  |  |  |  | | --- | --- | --- | | Opposite Rational Number | Opposite Rational Number | Sum | |  |  |  | |  |  |  | | | A   1. A submarine descends to a depth of 480 meters below sea level. Write an integer to represent this situation. Then find the additive inverse of the integer, and tell what it represents. | 1. A football play lost 8 yards. Write an integer to represent the situation. Then find the absolute value of that integer, and describe what it represents in the situation. | | |
| Student Notes/Comments/Questions | |

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| *(Initial in Box and & Date in the Space Provided When YOU CAN ☺)* | I can add, subtract, multiply, and divide rational numbers. |
| EXAMPLES:   |  |  | | --- | --- | |  |  | | 1. Emma and her friends were playing a game. Before her third turn, Emma had −2 points. During her third turn, Emma got 8 points. During her fourth turn, she lost 10 points and during her fifth turn, she got 5 points.   How many points did Emma have at the end of her fifth turn? | 1. A penguin dove to 130 feet below the water's surface. Then it swam up 48 feet toward the water's surface. Which integer represents where the penguin swam to?   A. 82 ft  B −48 ft  C. −82 ft  D. −178 ft | | 9. . What is the product of −3 and −12? | 10. | | |
| Student Notes/Comments/Questions: | |

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| *(Initial in Box and & Date in the Space Provided When YOU CAN ☺)* | I can represent addition and subtraction using at least one method such as a horizontal/vertical number line or two color counters method. |
| EXAMPLES:   |  |  | | --- | --- | | 1. Show the sum of -10 and 7 on the number line. | | | 1. An elevator descends 3 stories. Then, the elevator descends another 2 stories. 2. Write an expression to represent the situation. 3. Draw a number line to represent the situation. 4. Draw a picture to represent the situation. | | | 1. Represent 4 + –2 with chips/tiles. Draw your representation and its sum in the space below. Explain your representation. | 1. The temperature fell twelve degrees between midnight and 6 a.m. The temperature rose twelve degrees between 6 a.m. and 8 a.m. Draw a representation of this situation. | | |
| Student Notes/Comments/Questions: | |

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| *(Initial in Box and & Date in the Space Provided When YOU CAN ☺)* | I can explain, model, and apply commutative, associative, distributive, identity, and inverse properties to add and subtract rational numbers. |
| EXAMPLES:   |  |  | | --- | --- | | 1. Jamal is completing a math problem and represents the expression with a single rational number as shown in the steps below. Justify each of Jamal’s steps. Then, show another way to solve the problem. | | | 1. Simplify the expression. Show your work and identify or explain the properties you used at each step. | | | 1. Valerie has a balance of $50 in her checking account. She makes a deposit of $125 and then a withdrawal of $50. Write an expression for this situation and simplify. Identify the properties you used. | 1. Solve | | |
| Student Notes/Comments/Questions: | |

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| *(Initial in Box and & Date in the Space Provided When YOU CAN ☺)* | I can apply the principle of absolute value in real-world contexts to describe the distance between two rational numbers on the number line. |
| EXAMPLES:   |  |  |  | | --- | --- | --- | | 1. What is the distance between 1 and -7 on the number line? | | 1. The distance between a negative number and a positive number is . What are the numbers? | | 1. A hiker starts hiking at the beginning of a trail at a point which is feet below sea level. He hikes to a location on the trail that is feet above sea level and stops for lunch.    1. What is the vertical distance between feet below sea level and feet above sea level?    2. How should we interpret feet in the context of this problem? | | | | 1. Find the change in temperature if the temperature rises from ◦F to ◦ F (use a vertical number line). | 1. Beryl is the first person to finish a K race and is standing feet beyond the finish line. Another runner, Jeremy, is currently trying to finish the race and has approximately feet before he reaches the finish line. What is the minimum possible distance between Beryl and Jeremy? | | | |
| Student Notes/Comments/Questions: | |

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| *(Initial in Box and & Date in the Space Provided When YOU CAN ☺)* | I can Interpret products of rational numbers in real-life contexts. |
| EXAMPLES   |  |  | | --- | --- | | 1. Each time that Samantha rides the commuter train, she spends for her fare. Write an integer that represents the change in Samantha’s money from riding the commuter train to and from work for days. | 1. Explain why. Use patterns, or the properties of operations to support your reasoning. | | 1. Two integers are multiplied, and their product is a positive number. What must be true about the two integers? | 1. Use properties to explain why for each integer , . (Hint: What does equal? What is the additive inverse of ?) | | |
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| *(Initial in Box and & Date in the Space Provided When YOU CAN ☺)* | I can convert a rational number to a decimal using long division and identify terminating or repeating decimal representations of rational numbers. |
| EXAMPLES:   |  |  | | --- | --- | | 1. Use the long division algorithm to find the decimal value of . | 1. Chandler tells Aubrey that the decimal value of is not a repeating decimal. Should Aubrey believe him? Explain. | | 1. Convert each rational number into its decimal form:  |  |  |  | | --- | --- | --- | |  |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  | |  |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |  |  |  | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |  |  |  | |  |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  | |  |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |  |  |  | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |  |  |  | |  |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  | |  |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |  |  |  |   One of these decimal representations is not like the others. Why? | | | |

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| *(Initial in Box and & Date in the Space Provided When YOU CAN ☺)* | I can solve real-world and mathematical problems involving the four operations or rational numbers. |
| EXAMPLES:   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 1. Below is a transaction log of a business entertainment account. The transactions are completed and the ending balance in the account is . Determine the beginning balance.  |  |  |  |  |  | | --- | --- | --- | --- | --- | | DATE | DESCRIPTION OF TRANSACTION | PAYMENT | DEPOSIT | BALANCE | |  | Beginning Balance | --- | --- |  | | 12/1/10 | Bargain Electronic (I-Pod) |  |  |  | | 12/5/10 | Lenny’s Drive-Up (Gift Certificate) |  |  |  | | 12/7/10 | Check from Customer: Reynolds |  |  |  | | 12/15/10 | Pasta House (Dinner) |  |  |  | | 12/20/10 | Refund from Clear’s Play House |  |  |  | | 12/22/10 | Gaffney’s Tree Nursery |  |  |  | | | | 1. Monica regularly records her favorite television show. Each episode of the show requires 3.5% of the total capacity of her video recorder. Her recorder currently has 62% of its total memory free. If Monica records all five episodes this week, how much space will be left on her video recorder? | 1. At lunch time, Benjamin often borrows money from his friends to buy snacks in the school cafeteria. Benjamin borrowed $0.75 from his friend Clyde five days last week to buy ice cream bars. Represent the amount Benjamin borrowed as the product of two rational numbers; then, determine how much Benjamin owed his friend last week. | | 1. The chess club is selling drinks during the track and field event. The club purchased water, juice boxes, and pouches of lemonade for the event. They spent on juice boxes and on lemonade. The club purchased three cases of water. Each case of water cost . What was the total cost of the drinks? | 1. The sand pit for the long jump has a width of meters and a length of meters. Just in case it rains, the principal wants to cover the sand pit with a piece of plastic the night before the event. How many square meters of plastic will the principal need to cover the sand pit? | | |
| Student Notes/Comments/Questions: | |

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| *(Initial in Box and & Date in the Space Provided When YOU CAN ☺)* | I can apply the order of operations to solve problems with rational numbers. |
| EXAMPLES:   |  |  | | --- | --- | | 1. Anh Phu bought 5 yd of wool fabric at $5.49 per yard, a jacket for $48.88, and a pair of mittens for $3.88. She had a coupon that allowed her to deduct $1.00 from the total cost for each item over $10.00. How much did Anh Phu pay in all? |  | | 1. + 16 – (-6) | 1. 1 + |-3| -3 | | 1. 9 -1 + |-8| ÷ -4 |  | | |
| Student Notes/Comments/Questions: | |