TOPIC: **Translating Words to Algebra**

Khan Academy Link: https://www.khanacademy.org/math/algebra/introduction-to-algebra/alg1-writing-expressions/v/writing-expressions-with-variables-examples

Sample Problem:

If x represents the number of oranges purchased at 20 cents each, and y represents the number of apples purchased at 15 cents each, write an expression to represent the total value of the purchases in cents.

Step 1: identify the variable(s) you will use to represent your unknown(s) and understand what each variable will stand in for. This is usually called "defining your variable"

In the problem above, there are two unknowns provided along with the variables you must use to represent them:

$$x = \text{number of oranges purchased}$$

$$y = \text{number of apples purchased}$$

Step 2: Use the information in the problem to decide what math needs to be done in order to figure out the answer. In the problem above, you are asked to find the total *value* of the purchases. In order to do this, you will have to figure out the *value* of the oranges and the *value* of the apples. Once you know each of those you will add them together to find the total value.

NOTE: in order to figure out the *value* of the oranges, you will have to multiply the number of oranges purchased by the cost for each orange. That expression will be 20x. How will you represent the *value* of the apples?

Step 3: Set up your expression based on what you figured out in step 2!

Value of oranges + Value of apples = total

$$20x \quad + \quad 15y \quad = \text{total}$$

Step 4: Record the correct answer to the question: 20x + 15y

1. The value of a number is 4 more than the quantity 7 times x. Write an expression to represent the value of the number.	2. It took Mark 5 hours to drive from his college to his home. The next week he drove the same distance from his home back to his college in 4 hours. If the average rate for his first trip was r miles per hour, what was the average rate for the second trip, in terms of r?
3. A plumber charges a home visit fee of $50 plus a $25 per hour for repair work. Write an algebraic expression to represent the total cost for a home repair that takes h hours.	4. The width of a rectangular garden is 4 less than the length of the garden. Let L represent the length of the garden. Write an expression to represent the perimeter of the garden.