Lounge Grade 7 Algebraic Expressions Clarification

CCSSM: Grade 6

DOMAIN: Expressions and Equations

Cluster: Apply and extend previous understandings of arithmetic to algebraic expressions.

Standard: 6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers.
a. Write expressions that record operations with numbers and with letters standing for numbers.
c. Evaluate expressions at specific values for their variables.

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DOMAIN: Expressions and Equations

Cluster: Reason about and solve one-variable equations and inequalities.

Standard: 6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

Standard: 6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

Clarification of Math Discussion Terms

A mathematical **EXPRESSION** consists of numbers and symbols connected by operations. A **VARIABLE** is a symbol, usually a letter, used to represent a missing number or an unknown value in an expression. To **EVALUATE** an expression means to substitute a number in place of the variable and simplify the resulting expression to find its **VALUE.**

Classroom Example 1
Evaluate the expression $y - 7$ when the value of y is 11.
The value of the expression is 4 because $11 - 7 = 4$.

Evaluate the expression $3a$ when a is 18.
The value of the expression is 54 because $3(18) = 54$.

An expression may contain more than one variable.

Classroom Example 2
Evaluate the expression $3x + y$ when x is 7 and y is 5.
The value of the expression is 26 because $3(7) + 5 = 26$.

The Math in the Puzzle

In the levels 1 and 2 of the Lounge, the player must determine the value for each "eye," and use the eyes to purchase food from the vending machine. The first three trials produce expressions for which the player knows the final value. The player uses these to determine the values of the eyes. Then the player buys an indicated item and finally attempts to get the maximum amount of food.

In the screen shot above, the player has used the top three equations to determine the values of the green, blue, and pink eyes. The player is then asked to purchase the food item indicated by the flashing white line through it, in this case the item in the upper left corner. When that item is purchased, a Tasty Pack with lots of food will appear and the player must try to purchase that item.

In level 2, the player may not use three of the same "eye" when creating the expressions used to find the values of the eyes.

In level 3, the player creates expressions for which the values will be provided. Then the player uses the eyes to complete a table in which every item in the vending machine must be purchased.