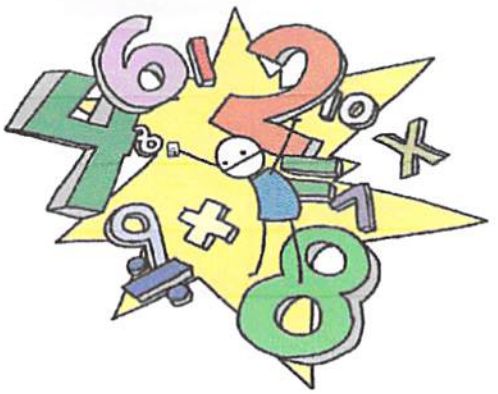
Excellent Expressions



Objective: Practice generating expressions and then using a variety of methods to determine if the expressions are equivalent.

Standards: **CC.M.6.EE.A.3:** Apply the properties of operations to generate equivalent expressions.
TEKS 6.7D: Generate equivalent expressions using operations, the inverse, identity, commutative, associative, and distributive properties.

Players: 2-8, Working with a partner if possible

Materials:
*Term cards in bag, one bag & set of cards per partner
*Picnic work mat for each pair
*Bags of "negative" and "positive" roaches, ants, ladybugs
*Example Sheet, 1 per pair of students
*Recording Sheet
*Passport and/or Exit Questions

Directions:

1. Each pair of students receives a Term Bag, insect bag, a picnic work mat, a Recording Sheet, and an Example Sheet.
2. Two students pull 2 term cards each from the bag.
3. All players put hands on shoulders.
4. The pairs **race** to see which pair can be first to **represent** the terms using insects, then **simplify the expression** by **combining** like terms.
5. All pairs then **record these steps** on their Recording Sheet.
6. If possible, they write an expression that would be **equivalent** to the simplified expression.
7. The **first** pair who correctly represented the insects and simplified by combining like terms receives 5 points.
8. All other pair who are correct win 3 points.
9. Play continues with by 2 players pulling 2 more terms each, simplifying, and recording.

Challenge: Each student pulls 3-4 terms at a time.

Excellent Expressions, SKILL REVIEW

Skill Review: Combining Like Terms

$3x - 7 + 4y - x + 2$

$3x$	-7	$+4y$
$-x$	$+2$	
$2x$	-5	$+4y$

$15 + 4x + 10 - 3x = 5x + 6 + 3x - 2$

$25 + 1x = 4 + 8x$

Skill Review: Using Properties & Operations to Indicate Equivalency

Repeated Addition

$3x = x + x + x$

Multiplicative Identity

$3x = x * 1 + x * 1 + x * 1$

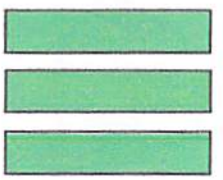
Distributive Property

$3x = x(1 + 1 + 1)$

Commutative Property

$3 * x = x * 3$

Concrete Model

$3x =$ 

Excellent Expressions, EXAMPLES

Partner 1	Partner 2	Simplifying	Equivalent Expression
$-3x$ $+1$	$+y$ $+x$	$-3x + x + 1 + y$ $-2x + y + 1$	$-3x + x + 1 + y = -3(x) + x + y + 1$

Partner 1	Partner 2	Simplifying	Equivalent Expression
$-x$ $+5y$	$-3y$ $+3x$	$-x + 5y + -3y + 3x$ $-2x + 2y$	$-2x + 2y = 2(y-x)$

Names:_____ Excellent Expression, RECORDING SHEET

Partner 1	Partner 2	Simplifying	Equivalent Expression
Partner 1	Partner 2	Simplifying	Equivalent Expression
Partner 1	Partner 2	Simplifying	Equivalent Expression
Partner 1	Partner 2	Simplifying	Equivalent Expression
Partner 1	Partner 2	Simplifying	Equivalent Expression
Partner 1	Partner 2	Simplifying	Equivalent Expression
Partner 1	Partner 2	Simplifying	Equivalent Expression

$+a$	$+2a$	$+5a$
$+r$	$+2r$	$+3r$
$+1$	$+2$	$+3$
$-a$	$-2a$	$-3a$
$-r$	$-2r$	$-3r$

+4	+5	+6
-1	-2	-3
+l	+2l	+3l
-l	-2l	-3l
+r	+2r	+3r

Ant = 5mg
Can carry 100x weight

Roach = .6g
Can carry 20x weight