# AR Remediation Plan – Algebraic Expressions

## Evaluating Expressions

### STRAND: Patterns, Functions and Algebra

### STRAND CONCEPT: Algebraic Expressions

### SOL: 7.11, 8.14a

### Remediation Plan Summary

Students play a card game that provides practice in evaluating algebraic expressions, using order of operations and variables. Exponents are limited to 1, 2, 3, or 4 and bases are limited to positive integers.

#### Common Misconceptions

Students will attempt to multiply the power and the base when simplifying exponents.

Students will ignore the order of operations and work from left to right.

#### Materials

Decks of “expression cards” (templates attached)

#### Introductory Activity

Display the introductory activity. Have students use a variable to write an expression to represent each of the following sentences:

* If there are 5,280 feet in a mile, how many feet are in *m* miles?
* At Kings Dominion, all snow cones cost $1.00. How much would *s* cones cost?
* At a local grocery store, bread costs $1.50 a loaf. How much would *b* loaves cost?
* If there are 5 calories in a gram of protein and 10 calories in a gram of fat, use a variable expression to show the number of calories from fat and protein in any food.
* Write an expression to represent the perimeter of the trapezoid shown

a

d

b

c

#### Plan for Instruction

* Arrange students into teams of two and distribute a deck of “expression cards” to each pair.
* Tell the students to shuffle the cards and place the deck face down in the center of the table. Have each player select a card and place it face down in front of him/her.
* Write *x* = 2 on the board. Explain to the students that when you say, “Go,” they should turn their selected cards over and evaluate the expression shown on the card, using *x* = 2. Walk around the room and as students finish, give them a signal for a correct answer, such as a pat on the shoulder, a high five, or a “thumbs up.”
* When all expressions have been evaluated, have the pairs of students exchange cards. This time, write *x* = 3 on the board, and say “Go.” Check answers as before.
* After round two, have students select another expression card from the deck. Repeat rounds 1 and 2 until time is up or until all the cards have been used. Substitute any value for *x* that you deem appropriate for the expressions.
* This exercise can become a game by giving partners a point for each correct answer.

#### Pulling It All Together (Reflection)

Have the teams of students create their own deck of expression cards. As a follow-up lesson or activity teams may exchange decks and simplify for additional practice.

**Note: The following pages are intended for classroom use for students as a visual aid to learning.**

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| --- | --- |
| **a****3*x* + 6** | **b****2*x* + 4** |
| **c****2(*x* − 1)** | **d****4*x* + 2** |
| **e****3*x* + 6** | **f****3*x* + 3** |
| **g****15 − (*x* + 7)** | **h****−3*x* − 1** |
| **i****3*x* + 6** | **j** |
| **k****5*x*(23 − 2)** | **l****(−52)*x*** |
| **m****2*x* + 6** | **n****82 − *x* + 2** |
| **o*****x* − (2 + 5)** | **p*****x*2 + 4** |
| **q****3(*x* + 6)** | **r****33 +**  |
| **s****11 − *x*2 + 6** | **t****4*x* + 72** |
| **u** | **v** |
| **w****−2*x* −**  | **x****(−6)4*x* + 2** |