Combining Like Terms and Simplifying Expressions
CA Standards 7AF 1.3
CCSS 7.EE.1

Introduction: "Find Your Family"	Activity:
Students are given random cards as they walk in the classroom. Students are to "find their family members" as they search for other students that have cards similar to theirs. After students find their groups have a discussion as to what is unique about their groups. Students may notice that their groups consist of all x's, or all y^2's.	See attached sheet.

Identifying Like Terms:	
Like terms have the *same variable* raised to the *same power*. EXAMPLE #1: Identify the like terms in the following expressions. a) $-3d + 8 - d - 2$ $\left[-3d, -d \text{ and } 8, -2\right]$ b) $6n^2 - 7n - 4 + n$ $\left[-7n, n\right]$	YOU TRY#1: Identify the like terms in the following expressions. a) $2 + 3a + 9a$ b) $12c^2 + 3 - 5c + 9c^2 - 2c - 1$

Simplifying Expressions and Combining Like Terms: EXAMPLE #2: Simplify the expression below, justify your answers. a) $3a + 2 + 9a$ $= 3a + 9a + 2$ Commutative Property $= 12a + 2$ Combine Like Terms The Commutative Property of Addition allows us to rewrite the expression so that the like terms are next to each other. b) $2a(a+3) - 5a + 5$ $= 2a(a) + 2a(3) + 5 - 5a$ Distributive Property $= 2a^2 + 6a + 5 - 5a$ $= 2a^2 + 6a - 5a + 5$ Commutative Property $= 2a^2 + a + 5$ Combine Like Terms	YOU TRY: Simplify the expression below, justify your answers. a) $3m + 7 - 4m$ b) $2x(3 - x) + 5x(4 + 2x) - 5$

Assessment Activity: Students work in pairs on the activity.	**Activity:** See Attached

Activity #1: Cut the expression into strips and have students organize them in the correct order while matching them to the correct property. Students can also match the correct properties to the steps of the expression.

Key #1

$2(x+4)+9x+1$	Given
$2x+8+9x+1$	Distributive Property
$2x+9x+8+1$	Commutative Property/ Group Like Terms
$11x+9$	Combine Like Terms and Simplify

	Given
	Distributive Property
	Commutative Property/Group Like Terms
	Combine Like Terms and Simplify

$2(x+4)+9x+1$	
$2x+8+9x+1$	
$2x+9x+8+1$	
$11x+9$	

Key #2

$5x + 2 + 3(x - 1)$	Given
$5x + 2 + 3x - 3$	Distributive Property
$5x + 3x + 2 - 3$	Commutative Property/ Group Like Terms
$8x - 1$	Combine Like Terms and Simplify

	Given
	Distributive Property
	Commutative property/ Group Like Terms
	Combine Like Terms and Simplify

$5x + 2 + 3(x - 1)$	
$5x + 2 + 3x - 3$	
$5x + 3x + 2 - 3$	
$8x - 1$	

Key #3

$-7(r^2 + 2) - 5r + 3r(r - 2)$	Given
$-7(r^2) - 7(2) - 5r + 3r(r) + 3r(-2)$	Distributive Property
$-7r^2 - 14 - 5r + 3r^2 - 6r$	Simplify
$-7r^2 + 3r^2 - 5r - 6r - 14$	Commutative Property/ Group like terms
$-4r^2 - 11r - 14$	Combine Like Terms and Simplify

	Given
	Distributive Property
	Simplify
	Commutative Property/ Group Like terms
	Combine Like Terms and Simplify

$-7(r^2+2)-5r+3r(r-2)$	
$-7(r^2)-7(2)-5r+3r(r)+3r(-2)$	
$-7r^2-14-5r+3r^2-6r$	
$-7r^2+3r^2-5r-6r-14$	
$-4r^2-11r-14$	

Finding Your Family

Description of Cards in Group	Similarities	Differences	What can you conclude?

Finding Your Family Cards

x	$2x$	x	$10x$	$5x$
x^2	$2x^2$	x^2	$3x^2$	$10x^2$
xy	$2xy$	$-xy$	$10xy$	$5xy$
x^2y^2	$2x^2y^2$	$-x^2y^2$	$2xy$	$10xy$
y	$2y$	$-y$	$10y$	$5y$
y^2	$2y^2$	$-y^2$	$10y^2$	$5y^2$
x^3	$2x^3$	$-x^3$	$10x^3$	$7x^3$
13	**5**	**10**	**2**	**7**