

### Vertical Progression:

6 <sup>th</sup> Grade	<p><b>6.EE.A Apply and extend previous understandings of arithmetic to algebraic expressions.</b></p> <ul style="list-style-type: none"> <li>○ <b>6.EE.A.4</b> Apply the properties of operations to generate equivalent expressions. <i>For example, apply the distributive property to the expression <math>3(2 + x)</math> to produce the equivalent expression <math>6 + 3x</math>; apply the distributive property to the expression <math>24x + 18y</math> to produce the equivalent expression <math>6(4x + 3y)</math>; apply properties of operations to <math>y + y + y</math> to produce the equivalent expression <math>3y</math>.</i></li> </ul>
7 <sup>th</sup> Grade	<p><b>7.EE.A Use properties of operations to generate equivalent expressions.</b></p> <ul style="list-style-type: none"> <li>○ <b>7.EE.A.1</b> Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients</li> </ul>
Algebra 1	<p><b>ELG.MA.HS.A.3 Perform arithmetic operations on polynomials.</b></p> <ul style="list-style-type: none"> <li>○ <b>A-APR.1</b> Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.</li> </ul>
Algebra 2	<p><b>ELG.MA.HS.N.4 Perform arithmetic operations with complex numbers.</b></p> <ul style="list-style-type: none"> <li>○ <b>N-CN.1</b> Know there is a complex number <math>i</math> such that <math>i^2 = -1</math>, and every complex number has the form <math>a + bi</math> with <math>a</math> and <math>b</math> real.</li> <li>○ <b>N-CN.2</b> Use the relation <math>i^2 = -1</math> and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.</li> </ul>

### Students will demonstrate command of the ELG by:

- Adding, subtracting, and multiplying polynomials.

### Vocabulary:

- Closure property
- Integer
- Polynomial

**Sample Instructional/Assessment Tasks:**

**1) Standard(s): A-APR.1**

**Source:** Adapted from PARCC Algebra 1 EOY Practice Test

**Item Prompt:**

Rewrite the expression  $-3a(a+b-5)+4(-2a+2b)+b(a+3b-7)$  to find the coefficients of each term:  
 $\underline{\quad}a^2 + \underline{\quad}b^2 + \underline{\quad}ab + \underline{\quad}a + \underline{\quad}b.$

**Correct Answer(s):**

Coefficients:  $-3a^2 + 3b^2 + -2ab + 7a + 1b$

**2) Standard(s): A-APR.1**

**Source:** Adapted from PARCC Algebra 1 PBA Practice Test

**Item Prompt:**

Simplify the expression:  $(3x^5 + 8x^3) - (7x^2 - 6x^3)$

**Correct Answer(s):**

$3x^5 + 14x^3 - 7x^2$