Tier 3
Intervention Lessons

6.EE.4

Learning Target: I will simplify algebraic expressions

Readiness for 6.EE.4a: Solve equations with more than one step

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Tier 3 Intervention Planning Guide

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

	Recommended Actions
Beginning (5 min.)	➢ Review the learning target with the whole group ➢ Ask each student to set a goal for the day based on their previous Quick Check Score ➢ Have each student use a highlighter to plot their goal for the day
Middle (15 min.)	➢ Model solving a word problem – "I do" *(Sessions 1, 3 and 6 only)* ➢ Guided Practice – "We do" **Sessions 1 and 2:** Simplify algebraic expressions using algebra tiles **Sessions 3, 4 and 5:** Simplify algebraic expressions using drawings **Sessions 6, 7 and 8:** Simplify algebraic expressions by identifying and combining like-terms

End (10 min.)	➢ Bring the students back together.
	➢ Ask students to reflect on their progress towards the learning target
	   o What did I learn today about simplifying algebraic expressions?
	   o How confident do you feel about simplifying algebraic expressions on my own? (Thumbs up, down, or sideways)
	➢ Assess each student's progress using the next **Quick Check** form
	➢ Guide students to self-correct their **Quick Check**
	➢ Guide students to chart their progress in their **Growth Chart**
	   o If not using Delta Math lessons, record the activity in the table
	➢ Collect each student's **Quick Check** and **Growth Chart**

After Session 6	➢ Differentiation Options:
	   o Allow students who met the learning goal to work independently while others do the guided practice during the next session
	   o Exit students who met the learning goal for a third time
	➢ Problem solve with a team to plan additional support for students who do not meet the learning goal within 8 sessions

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

Jon and his brother were planning to sell their baseball card collection. Jon has a mystery number of baseball cards and twice as many as his brother. Together they have $x + 2x$ baseball cards. What is a simplified expression equal to the total number of baseball cards that Jon and his brother have?

Session 1: Modeling *(I Do – Visual Support)*

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

Jon and his brother were planning to sell their baseball card collection. Jon has a mystery number of baseball cards and twice as many as his brother. Together they have $x + 2x$ baseball cards. What is a simplified expression equal to the total number of baseball cards that Jon and his brother have?
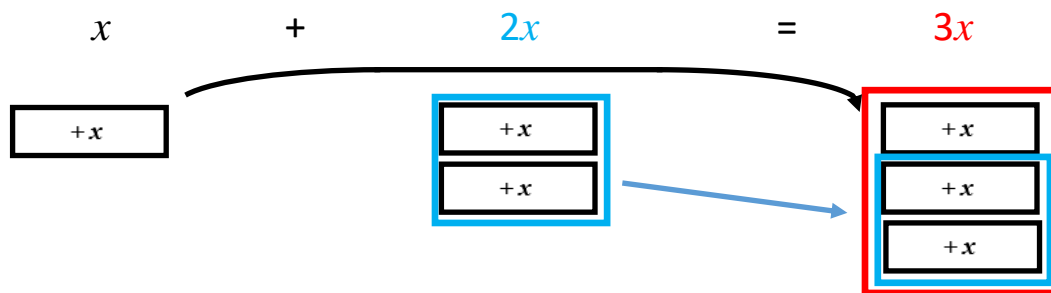
Jon's Total   +   Jon's Brother's Total   = Total Number of Cards

x + $2x$ = $3x$

| $+x$ |

| $+x$ |
| $+x$ |

| $+x$ |
| $+x$ |
| $+x$ |

Note: Color-coding is provided to help the interventionist make connections between the numbers, symbols and pictures. It may also help students who struggle to make similar connections.

Session 1: Modeling *(I Do - Teacher Notes)*

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

> Jon and his brother were planning to sell their baseball card collection. Jon has a mystery number of baseball cards and twice as many as his brother. Together they have $x + 2x$ baseball cards. What is a simplified expression equal to the total number of baseball cards that Jon and his brother have?

I am going to think aloud to model solving this problem.

Your job is to watch, listen, think and ask questions.

First, it is important to know what the problem is about.

The problem is about Jon and his brother's baseball card collection.

Second, I need to determine what I need to find.

I need to find a simplified expression equal to the total number of baseball cards that Jon and his brother have.

Third, I need to determine what I know.

I know Jon has a mystery number of baseball cards and twice as many as his brother.
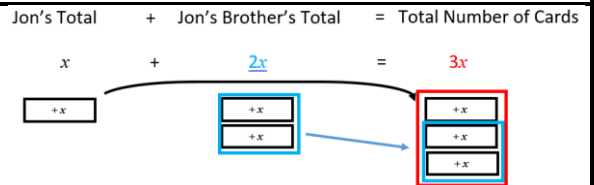(Write "John's Total + Jon's Brother's Total = Total Number of Cards".)

I also know that altogether they have $x + 2x$ baseball cards.
(Write "x + 2x .)

Fourth, I need to figure out what I can try.

I am going to use algebra tiles to help me build the original algebraic expression and then find a simplified expression that is equivalent to the original.

I will represent the mystery number that Jon has using an "+x" tile and since Jon's brother has twice as many cards…I will use 2 "+x" tiles to represent that number.
(Place 1 "+x" tile below the term "x" and 2 "+x" tiles below the term "$2x$".)

Next, since all of the tiles have the same value, I can combine them as a group of 3 x's.
(Move all of the x's into a single group and write "= 3x" next to the original expression.)

Last, I need to make sure that my answer makes sense.

I found that together Jon and his brother have a total of 3x baseball cards. This makes sense because I modeled the situation using algebra tiles and then combined the x tiles to make a "simpler" expression.

Learning Target: I will simplify algebraic expressions

Session 1: Guided Practice (We Do)

Materials:

➢ Algebra Tiles (1 set on p. 13: 20 +1s and 16 +x's per student)

➢ Equation mat (1 per student)

We Do Together: (Teacher Actions)

➢ Say, build and simplify each algebraic expression.

   (Both partners build the original expression and only one rearranges their tiles to simplify the expression.)

1. $2x + 4 + 3x$ 	**2.** $x^2 + 3x + 4 + x - 3$
3. $2(x + 3)$ 	**4.** $2(x^2 + 3) + x^2 + 4x - 1$

Learning Target: I will simplify algebraic expressions

Session 1: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➢ Students take turns leading to simplify each algebraic expression.

5. $2x + 4 + 3x + 2 + x - 1$	**6.** $x^2 + 2x + 4 + x + 1 + 3x^2$
7. $3(x + 4)$	**8.** $3(x^2 + 2x + 4)$
9. $2(3x^2 + 5) + 2x^2 + 4x - 2$	**10.** $2(x^2 + 2x + 1) + 3(x^2 + x + 2)$

Name _____ Date _____

Learning Target: I will simplify algebraic expressions

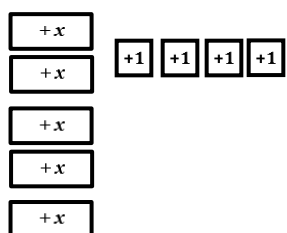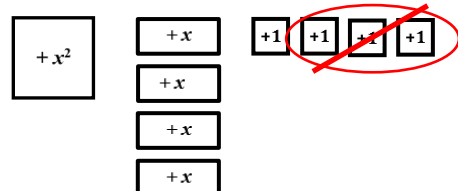# Session 1: Guided Practice (We Do – Teacher Notes)
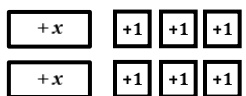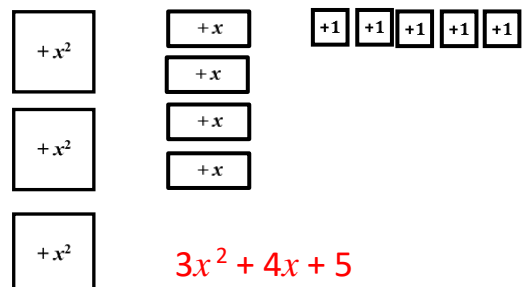
Materials:

➢ Algebra Tiles (1 set on p. 13: 20 +1s and 16 +x's per student)

➢ Expression mat (1 per student)

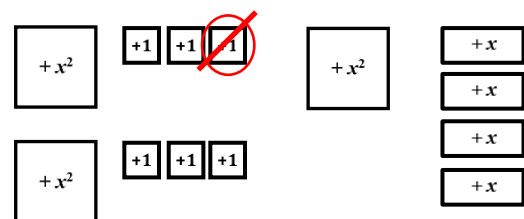**We Do Together:** (Teacher Actions)

➢ Say, build and work in pairs to simplify each algebraic expression.

(Both partners build the original expression and only one rearranges their tiles to simplify the expression.)

1.	2.
$2x + 4 + 3x$	$x^2 + 3x + 4 + x - 3$
$5x + 4$	$x^2 + 4x + 1$
3.	4.
$2(x + 3)$	$2(x^2 + 3) + x^2 + 4x - 1$
$2x + 6$	$3x^2 + 4x + 5$

Build 2 groups of "$x^2 + 3$", 3 "x^2s", and 4 "xs"
then take away 2 "+1" tiles

Problem 4
Original Expression

Algebra Tiles (2 sets of positive tiles)

Directions: Provide each student one set of positive tiles.

+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$

$+x^2$	$+x^2$	$+x^2$	$+x^2$	$+x^2$	$+x^2$
$+x^2$	$+x^2$	$+x^2$	$+x^2$	$+x^2$	$+x^2$

✂ --

+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$

$+x^2$	$+x^2$	$+x^2$	$+x^2$	$+x^2$	$+x^2$
$+x^2$	$+x^2$	$+x^2$	$+x^2$	$+x^2$	$+x^2$

Modeling & Guided Practice Cards

Use for Problem 1	Use for Problem 2
$2x + 4 + 3x$	$x^2 + 3x + 4 + x - 3$

Use for Problem 3	Use for Problem 4
$2(x + 3)$	$2(x^2 + 3) + x^2 + 4x - 1$

Use for Problem 5	Use for Problem 6
$2x + 4 + 3x + 2 + x - 1$	$x^2 + 2x + 4 + x + 1 + 3x^2$

Use for Problem 7	Use for Problem 8
$3(x + 4)$	$3(x^2 + 2x + 4)$

Use for Problem 9	Use for Problem 10
$2(3x^2 + 5) + 2x^2 + 4x - 2$	$2(x^2 + 2x + 1) + 3(x^2 + x + 2)$

Use for Modelling	
$x + 2x + 3x$	

Learning Target: I will simplify algebraic expressions

Briefly discuss student responses

➢ What did I learn today about simplifying algebraic expressions?

➢ How confident do I feel about simplifying algebraic expressions on my own? *(Thumbs up, down, or sideways)*

Quick Check - Form A

Name_____ Date_____

Learning Target: I will simplify algebraic expressions.

Directions: Write the simplified equivalent expression. (Work time: 4 minutes)

1. $x + x + x + x$	**2.** $4x + 3 + 2x$
3. $11 + 9x + 2 - 6x$	**4.** $2(x + 6)$
5. $4(x + 1) + 3x$	**6.** $4(x + 3) - 2 + x$

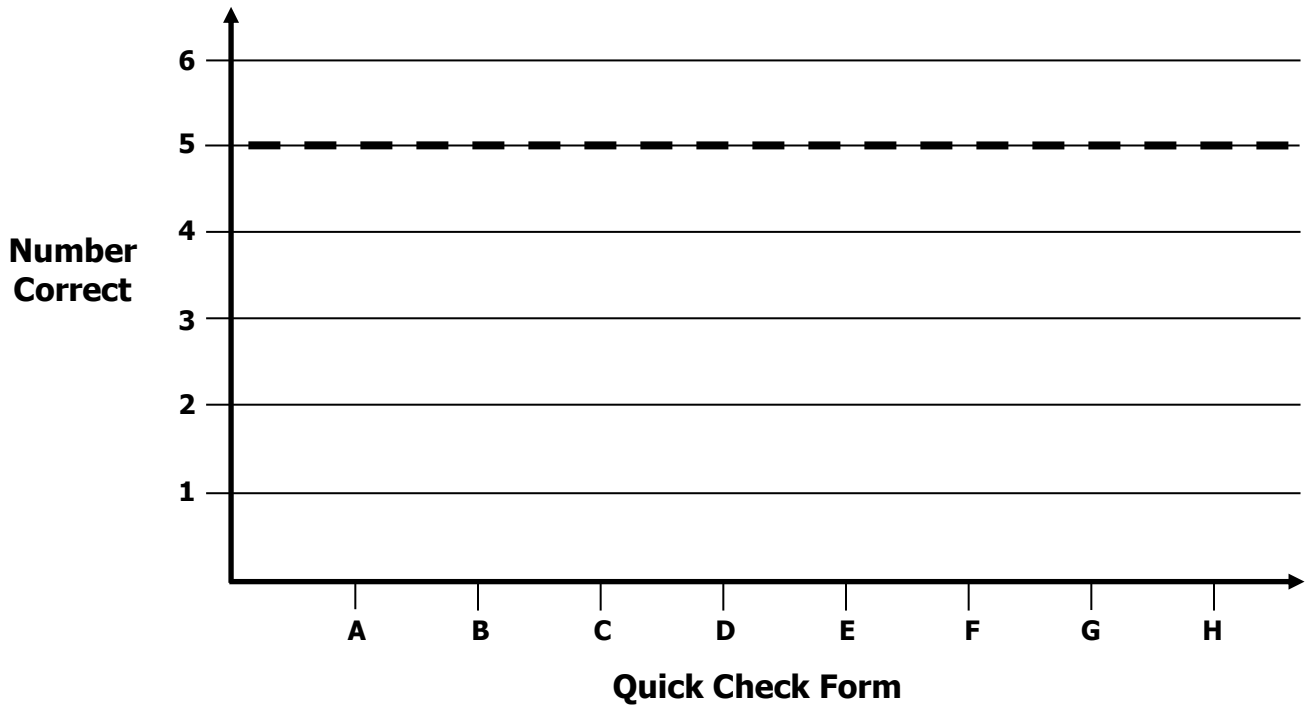# Growth Chart

Name_____ Date_____

Learning Target: I will simplify algebraic expressions.

Goal: 5 out of 6 correct

Number Correct

| Quick Check Form: A B C D E F G H |

(Graph with y-axis "Number Correct" labeled 1–6, dashed goal line at 5, x-axis "Quick Check Form" with points A, B, C, D, E, F, G, H)

Intervention	Date	Score
Session 1:		
Session 2:		
Session 3:		
Session 4:		
Session 5:		
Session 6:		
Session 7:		
Session 8:		

Learning Target: I will simplify algebraic expressions

Session 2: Guided Practice (We Do)

Materials:

➢ Algebra Tiles (1 set on p. 13: 20 +1s and 16 +x's per student)

➢ Equation mat (1 per student)

We Do Together: (Teacher Actions)

➢ Say, build and simplify each algebraic expression.

(Both partners build the original expression and only one rearranges their tiles to simplify the expression.)

1. $4x + 5 + 2x$	2. $2x^2 + 4x + 3 + x - 1$
3. $3(x + 2)$	4. $2(x^2 + 1) + x^2 + 5x - 1$

Learning Target: I will simplify algebraic expressions

Session 2: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➢ Students take turns leading to simplify each algebraic expression.

5. $3x + 5 + 3x + 2 + x - 1$	**6.** $x^2 + 3x + 4 + x + 1 + 2x^2$
7. $3(x + 5)$	**8.** $2(x^2 + 3x + 4)$
9. $2(4x^2 + 5) + 2x^2 + 3x - 2$	**10.** $3(x^2 + 2x + 1) + 2(x^2 + x + 2)$

Session 2: Self-Reflection

Learning Target: I will simplify algebraic expressions

Briefly discuss student responses

➢ What did I learn today about simplifying algebraic expressions?

➢ How confident do I feel about simplifying algebraic expressions on my own? *(Thumbs up, down, or sideways)*

Quick Check - Form B

Name_____ Date_____

Learning Target: I will simplify algebraic expressions.

Directions: Write the simplified equivalent expression. (Work time: 4 minutes)

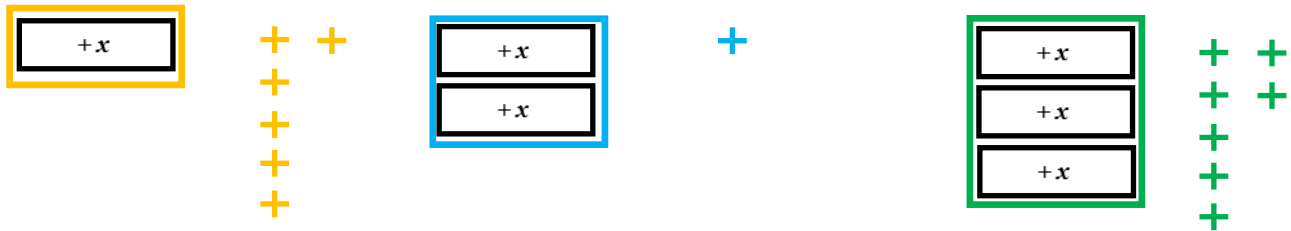|	
1. $x + x + x$	**2.** $9x + 6 + x$
3. $8x + 4 - 2x + 6$	**4.** $4(x + 3)$
5. $5x + 6(x + 1)$	**6.** $4 + 5(x + 3) - 2x$

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

Sally scored 6 more than a mystery number points during last night's basketball game. Alexis scored 1 more than twice the mystery number of points during the same game. Together they scored $x + 6 + 2x + 1$ points during the game. What is a simplified expression equal to the total number of points they scored?

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

Sally scored 6 more than a mystery number points during last night's basketball game. Alexis scored 1 more than twice the mystery number of points during the same game. Together they scored $x + 6 + 2x + 1$ points during the game. What is a simplified expression equal to the total number of points they scored?

Sally's Total + Alexis' Total = Total Number of Points

x + 6 + $2x$ + 1 = $3x$ + 7

Note: Color-coding is provided to help the interventionist make connections between the numbers, symbols and pictures. It may also help students who struggle to make similar connections.

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

> Sally scored 6 more than a mystery number points during last night's basketball game. Alexis scored 1 more than twice the mystery number of points during the same game. Together they scored $x + 6 + 2x + 1$ points during the game. What is a simplified expression equal to the total number of points they scored?

I am going to think aloud to model solving this problem.

Your job is to watch, listen, think and ask questions.

First, it is important to know what the problem is about.

The problem is about Sally and Alexis playing in last night's basketball game.

Second, I need to determine what I need to find.

I need to find a simplified expression equal to the total number of points they scored.

Third, I need to determine what I know.

I know Sally scored $x + 6$ points and Alexis scored $2x + 1$ points.
(Write "Sally's Total + Alexis' Total = Total Number of Points".)

And together they scored $x + 6 + 2x + 1$ points.
(Write "$x + 6 + 2x + 1$" below the labels.)

Fourth, I need to figure out what I can try.

I am going to use a math drawing to help me model this situation.

I will draw an "+x tile" and 6 "plus signs" to represent Sally's total…
(Draw the "+x" and "plus signs" below each term for Sally.)

And 2 "+x tiles" and 1 "plus sign" to represent Alexis' total.
(Draw the "+x" and "plus signs" below each term for Alexis.)

Now, I will count the total number of "+x tiles" and draw them as a group…1…2…3 +x's.
(Point to each "+x tile" as you count…then draw 3 +x tiles under the label for the total.)

Next, I will count the number of "plus signs" and draw them as a group…6 and 1 is equal to 7.
(Point to the 6 plus signs for Sally and then the 1 for Alexis…then draw 7 plus signs below the label for the total.)

The simplified expression $x + 6 + 2x + 1$ is equal to $3x + 7$.
(Point to the math drawings under the total.)

Sally's Total + Alexis' Total = Total Number of Points
x + 6 + $2x$ + 1 = $3x$ + 7

Last, I need to make sure that my answer makes sense.

I found that Sally and Alexis made a total of $3x + 7$ points. This makes sense because I modeled the situation using a math drawing and then totaled the "like" tiles to make a "simpler" expression.
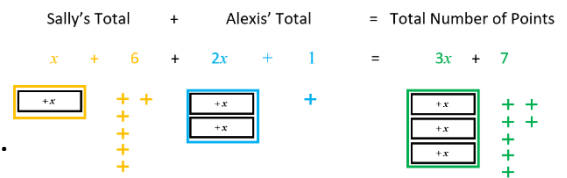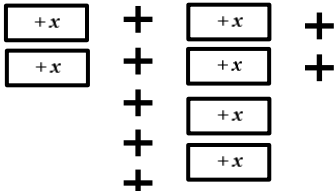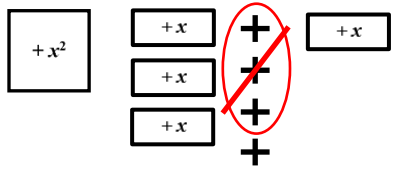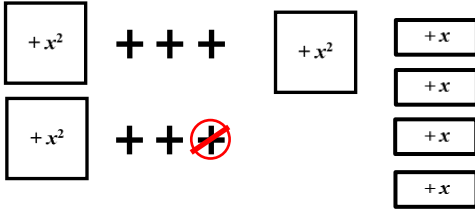
Name _____ Date _____

Learning Target: I will simplify algebraic expressions

Session 3: Guided Practice (We Do)

We Do Together: (Teacher Actions)

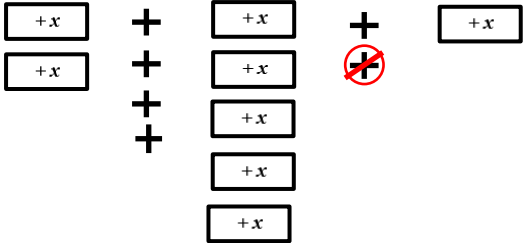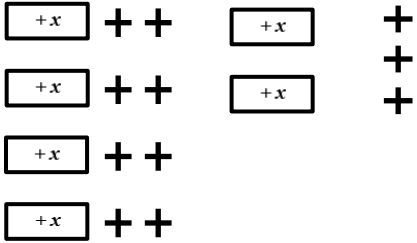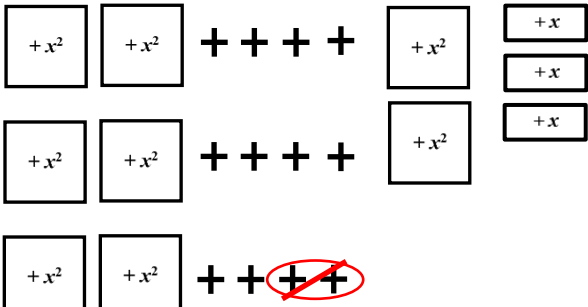➢ Say, draw, and simplify each algebraic expression.

Not Simplified	Simplified
1. $2x + 5 + 4x + 2$ 	
2. $x^2 + 3x + 4 + x - 3$ 	
3. $2(x^2 + 3) + x^2 + 4x - 1$ 	

Learning Target: I will simplify algebraic expressions

Session 3: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➢ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
4. $2x + 4 + 5x + 2 + x - 1$	
5. $4(x + 2) + 2x + 3$	
6. $3(2x^2 + 4) + 2x^2 + 3x - 2$	

Learning Target: I will simplify algebraic expressions

Session 3: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

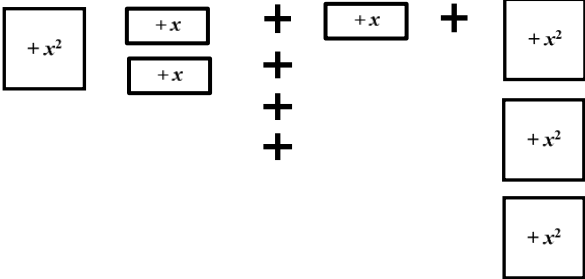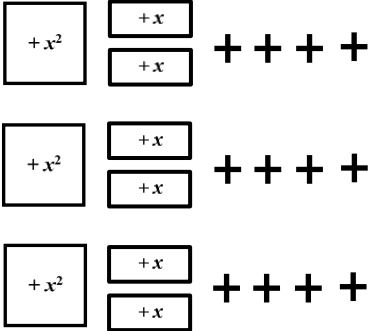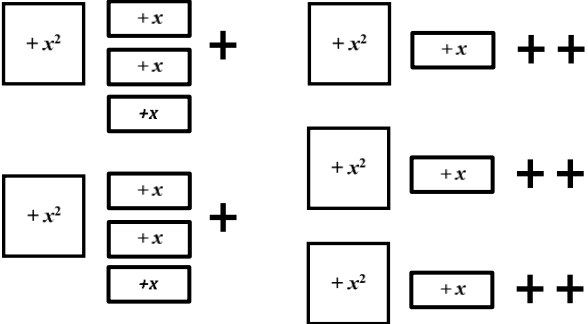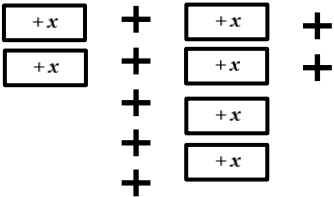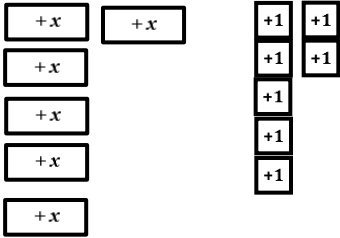➢ Students take turns leading to simplify each algebraic expression.
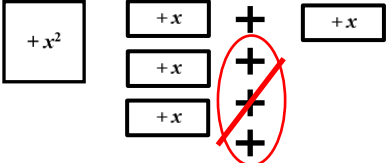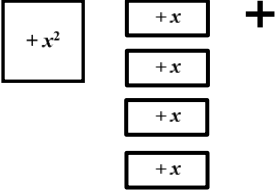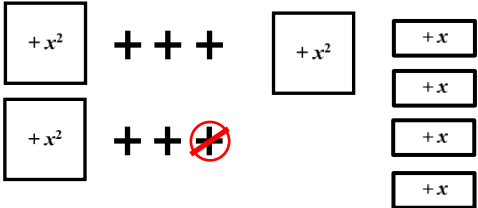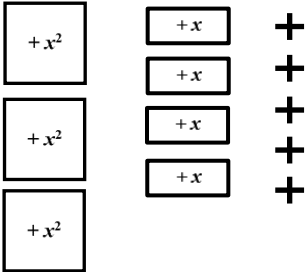
Not Simplified	Simplified
7. $$x^2 + 2x + 4 + x + 1 + 3x^2$$	
8. $$3(x^2 + 2x + 4)$$	
9. $$2(x^2 + 3x + 1) + 3(x^2 + x + 2)$$	

Name _____ Date _____

Learning Target: I will simplify algebraic expressions

Session 3: Guided Practice (We Do – Teacher Notes)

We Do Together: (Teacher Actions)

➢ Say, draw, and simplify each algebraic expression.

Not Simplified	Simplified
1. $2x + 5 + 4x + 2$	$6x + 7$
2. $x^2 + 3x + 4 + x - 3$	$x^2 + 4x + 1$
3. $2(x^2 + 3) + x^2 + 4x - 1$	$3x^2 + 4x + 5$

Session 3: Self-Reflection

Learning Target: I will simplify algebraic expressions

Briefly discuss student responses

> What did I learn today about simplifying algebraic expressions?

> How confident do I feel about simplifying algebraic expressions on my own? *(Thumbs up, down, or sideways)*

Quick Check - Form C

Name_____ Date_____

Learning Target: I will simplify algebraic expressions.

Directions: Write the simplified equivalent expression. (Work time: 4 minutes)

1. $x + x + x + x + x$	**2.** $4x + 3x + 2$
3. $4x + 6 - 2x + 3$	**4.** $5(x + 5)$
5. $7(x + 2) - 5x$	**6.** $x + 3(x + 1) - 2$

Name _____ Date _____

Learning Target: I will simplify algebraic expressions

Session 4: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➢ Say, draw, and simplify each algebraic expression.

Not Simplified	Simplified
1. $2x + 5 + 3x + 1$	
2. $x^2 + 3x + 4 + x - 2$	
3. $2(x^2 + 3) + 3x^2 + 4x - 1$	

Learning Target: I will simplify algebraic expressions

Session 4: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➢ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
4. $2x + 4 + 6x + 2 + x - 3$	
5. $3(x + 2) + 2x + 3$	
6. $2(2x^2 + 4) + 2x^2 + 3x - 1$	

Learning Target: I will simplify algebraic expressions

Session 4: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➢ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
7. $x^2 + 4x + 2 + x + 1 + 3x^2$ 	
8. $3(x^2 + 2x + 5)$ 	
9. $2(x^2 + 3x + 2) + 3(x^2 + x + 4)$ 	

Session 4: Self-Reflection

Learning Target: I will simplify algebraic expressions

Briefly discuss student responses

➢ What did I learn today about simplifying algebraic expressions?

➢ How confident do I feel about simplifying algebraic expressions on my own? *(Thumbs up, down, or sideways)*

Name_____ Date_____

Learning Target: I will simplify algebraic expressions.

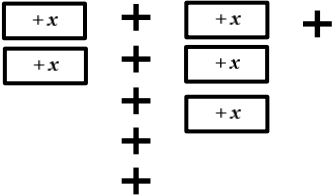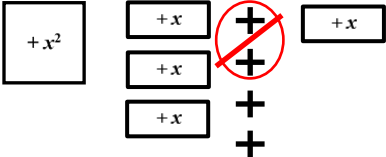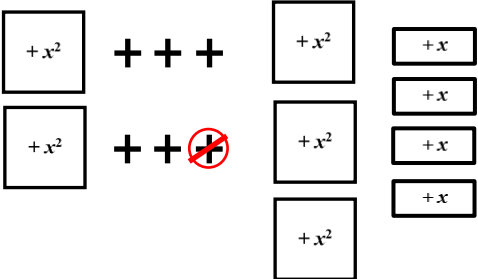**Directions:** Write the simplified equivalent expression. (Work time: 4 minutes)

1. $x + x + x + x$	**2.** $5x + 6x + 10$
3. $3 + 9x - 6x + 4$	**4.** $6(x + 7)$
5. $4x + 2(x + 1)$	**6.** $4(x + 2) - 3 + x$

Learning Target: I will simplify algebraic expressions

Session 5: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➤ Say, draw, and simplify each algebraic expression.
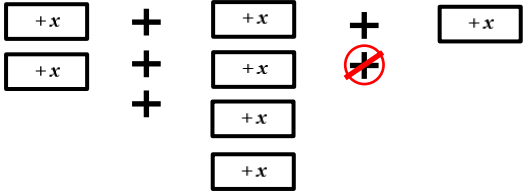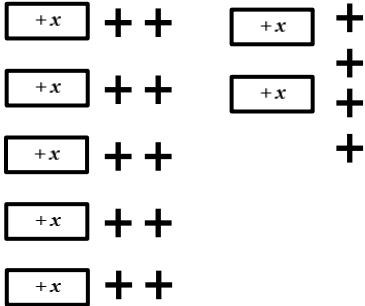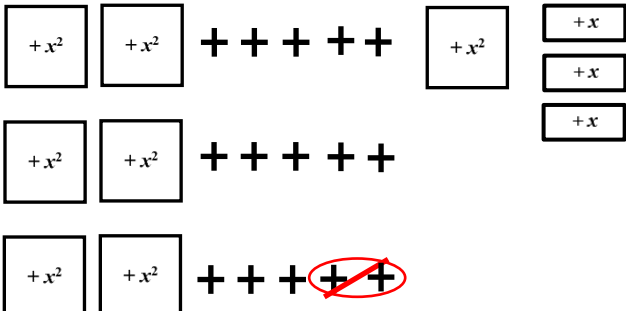
Not Simplified	Simplified
1. $3x + 5 + 4x + 2$ 	
2. $2x^2 + 3x + 4 + x - 3$ 	
3. $2(x^2 + 3) + x^2 + 4x - 2$ 	

Name _____ Date _____

Learning Target: I will simplify algebraic expressions

Session 5: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

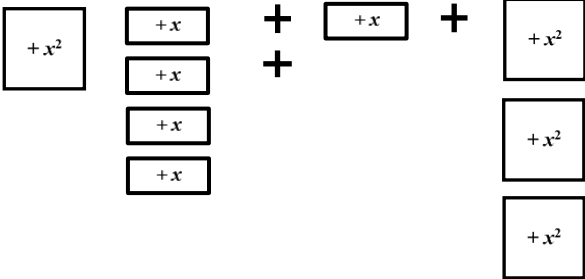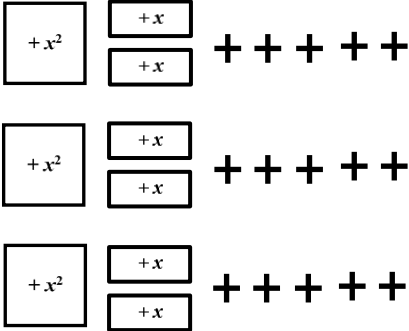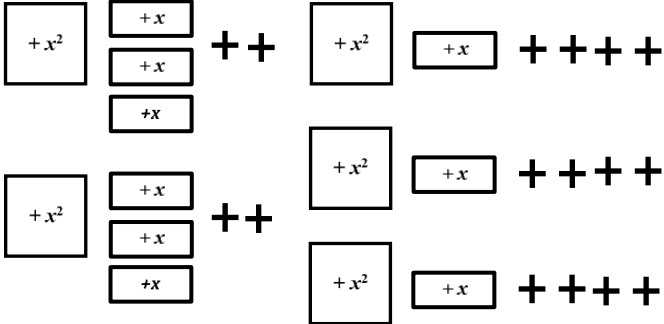➢ Students take turns leading to simplify each algebraic expression.
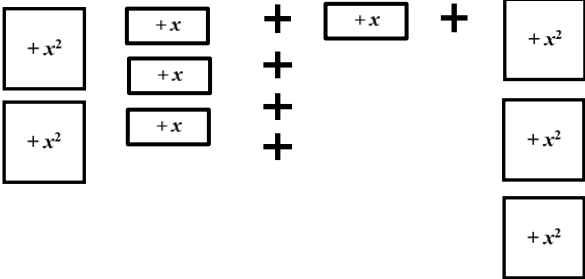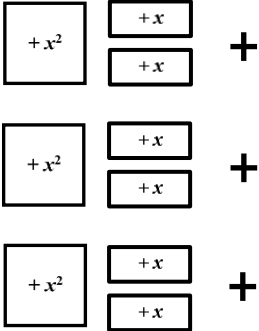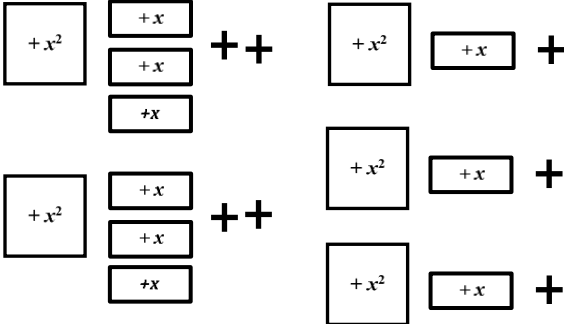
Not Simplified	Simplified
4. $2x + 3 + 4x + 2 + x - 1$ 	
5. $5(x + 2) + 2x + 4$ 	
6. $3(2x^2 + 5) + x^2 + 3x - 2$ 	

Learning Target: I will simplify algebraic expressions

Session 5: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➢ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
7. $2x^2 + 3x + 4 + x + 1 + 3x^2$ $+x^2$ $+x$ $+$ $+x$ $+$ $+x^2$ $+x$ $+$ $+x^2$ $+x$ $+$ $+x^2$ $+$ $+x^2$	
8. $3(x^2 + 2x + 1)$ $+x^2$ $+x$ $+x$ $+$ $+x^2$ $+x$ $+x$ $+$ $+x^2$ $+x$ $+x$ $+$	
9. $2(x^2 + 3x + 2) + 3(x^2 + x + 1)$ $+x^2$ $+x$ $+x$ $+x$ $++$ $+x^2$ $+x$ $+$ $+x^2$ $+x$ $+$ $+x^2$ $+x$ $+x$ $+x$ $++$ $+x^2$ $+x$ $+$	

Session 5: Self-Reflection

Learning Target: I will simplify algebraic expressions

Briefly discuss student responses

> What did I learn today about simplifying algebraic expressions?

> How confident do I feel about simplifying algebraic expressions on my own? *(Thumbs up, down, or sideways)*

Name_____ Date_____

Learning Target: I will simplify algebraic expressions.

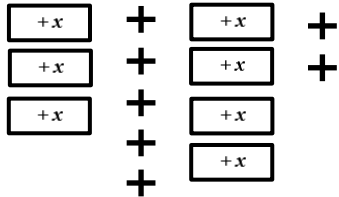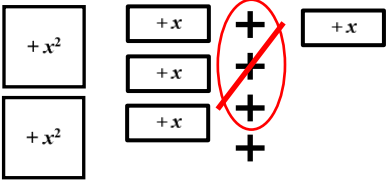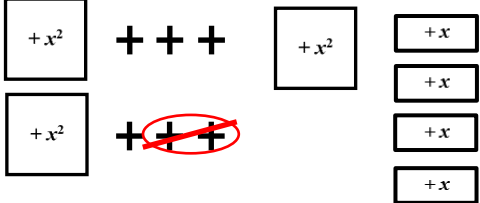**Directions:** Write the simplified equivalent expression. (Work time: 4 minutes)

1. $x + x + x + x$	**2.** $4x + 3 + 2x$
3. $11 + 9x + 2 - 6x$	**4.** $2(x + 6)$
5. $4(x + 1) + 3x$	**6.** $4(x + 3) - 2 + x$

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

Pete and Nolan both ate cookies at their school party. Pete ate 5 more than a mystery number of cookies and Nolan ate 1 less than twice the same mystery number of cookies. Together they ate $x + 5 + 2x - 1$ cookies at their school party. What is a simplified expression equal to the total number of cookies they ate at the party?

Session 6: Modeling (I Do – Visual Support)

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

Pete and Nolan both ate cookies at their school party. Pete ate 5 more than a mystery number of cookies and Nolan ate 1 less than twice the same mystery number of cookies. Together they ate $x + 5 + 2x - 1$ cookies at their school party. What is a simplified expression equal to the total number of cookies they ate at the party?

| Pete's Total | + | Nolan's Total | = | Total Number of Cookies |

$$x + \underline{5} + 2x - \underline{1} = x + 2x + 5 - 1$$

$$= 3x + 4$$

Session 6: Modeling *(I Do - Teacher Notes)*

Learning Target: I will simplify algebraic expressions

Readiness for solving equations with more than one step

> Pete and Nolan both ate cookies at their school party. Pete ate 5 more than a mystery number of cookies and Nolan ate 1 less than twice the same mystery number of cookies. Together they ate $x + 5 + 2x - 1$ cookies at their school party. What is a simplified expression equal to the total number of cookies they ate at the party?

First, it is important to know what the problem is about.

This problem is about Pete and Nolan eating cookies.

Second, I need to determine what I need to find.

I need to find a simplified expression equal to the total number of cookies they ate.

Third, I need to determine what I know.

I know that Pete ate 5 more than a mystery number of cookies and Nolan ate 1 less than twice the same mystery number of cookies.
(Write "Pete's Total + Nolan's Total = Total Number of Cookies".)

And…together they ate $x + 5 + 2x - 1$ cookies.
(Write the expression below the labels.)

Fourth, I need to figure out what I can try.

This time, I am going to try using my understanding of combining like terms to help me simplify the expression…

Pete's Total	+	Nolan's Total	=	Simplified Expression
$\underline{x}$ + $\underline{\underline{5}}$	+	$\underline{2x}$ − $\underline{\underline{1}}$	=	$x + 2x$ + $5 - 1$
			=	$3x$ + 4

"x" and "$2x$" are like terms and I remember when we used tiles and drawings that we could combine them…
(Underline the "x" and "$2x$"…then write them on the right side of the equal sign.)

The terms "5" and "1" are also like terms and can be combined…but don't forget we are subtracting the "1".
(Double underline the "5" and "1"…then write them on the right side of the equal sign.)

When I add the "x" and "$2x$"…I end up with "$3x$'s".
(Write two number bonds and "$3x$".)

When I subtract "1" from "5"…I end up with "4".
(Write two number bonds and "4".)

$3x + 4$ is the simplified expression equal to $x + 5 + 2x - 1$.
(Write the last equal sign.)

Last, I need to make sure that my answer makes sense.

I found that Pete and Nolan ate $3x + 4$ cookies at the party. This makes sense because I visualized using algebra tiles to help me combine like terms to simplify the original algebraic expression.

Learning Target: I will simplify algebraic expressions

Session 6: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➤ Simplify each algebraic expression.

Not Simplified	Simplified
1. $2x + 7 + x + 2$	
2. $x^2 + 5x + 9 + x - 2$	
3. $3(x^2 + 5) + 1$	
4. $2(x^2 + 3) + 3x^2 + 7x - 1$	

Learning Target: I will simplify algebraic expressions

Session 6: **Guided Practice** (We Do - Continued)

You Do Together: (As a class, or in small groups)

➢ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
5. $5x + 3 + 5x + 9 + x - 1$	
6. $7(x + 6) + 3x + 8$	
7. $5(2x^2 + 9) + 4x^2 + 8x - 5$	
8. $8(2x^2 + 7) + 3x^2 + 6x - 4$	

Name _____ Date _____

Learning Target: I will simplify algebraic expressions

Session 6: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➤ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
9. $x^2 + 5x + 9 + x + 1 + 4x^2$	
10. $7(x^2 + 3x + 6) - 10$	
11. $3(x^2 + 4x + 1) + 4(2x^2 + x + 3)$	
12. $5(4x^2 + x + 1) + 2(x^2 + 7x + 3)$	

Learning Target: I will simplify algebraic expressions

Session 6: Guided Practice (We Do – Teacher Notes)

➢ Simplify each algebraic expression.

Not Simplified	Simplified
1. $2x + 7 + x + 2$	$2x + x + 7 + 2$ $3x + 9$
2. $x^2 + 5x + 9 + x - 2$	$x^2 + 5x + x + 9 - 2$ $x^2 + 6x + 7$
3. $3(x^2 + 5) + 1$	$3 \cdot x^2 + 3 \cdot 5 + 1$ $3x^2 + 15 + 1$ $3x^2 + 16$
4. $2(x^2 + 3) + 3x^2 + 7x - 1$ $2 \cdot x^2 + 2 \cdot 3 + 3x^2 + 7x - 1$	$2x^2 + 6 + 3x^2 + 7x - 1$ $2x^2 + 3x^2 + 7x + 6 - 1$ $5x^2 + 7x + 5$

Session 6: Self-Reflection

Learning Target: I will simplify algebraic expressions

Briefly discuss student responses

> ➤ What did I learn today about simplifying algebraic expressions?

> ➤ How confident do I feel about simplifying algebraic expressions on my own? *(Thumbs up, down, or sideways)*

Quick Check - Form F

Name_____ Date_____

Learning Target: I will simplify algebraic expressions.

Directions: Write the simplified equivalent expression. (Work time: 4 minutes)

1. $x + x + x$	**2.** $9x + 6 + x$
3. $8x + 4 - 2x + 6$	**4.** $4(x + 3)$
5. $5x + 6(x + 1)$	**6.** $4 + 5(x + 3) - 2x$

Learning Target: I will simplify algebraic expressions

Session 7: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➢ Simplify each algebraic expression.

Not Simplified	Simplified
1. $4x + 7 + x + 2$	
2. $x^2 + 7x + 9 + x - 2$	
3. $6(x^2 + 5) + 1$	
4. $3(x^2 + 7) + 5x^2 + 9x - 1$	

Learning Target: I will simplify algebraic expressions

Session 7: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➢ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
5. $2x + 3 + 8x + 7 + x - 1$	
6. $7(x + 8) + 3x + 6$	
7. $3(2x^2 + 7) + 5x^2 + 8x - 4$	
8. $9(2x^2 + 8) + 4x^2 + 6x - 3$	

Learning Target: I will simplify algebraic expressions

Session 7: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➤ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
9. $x^2 + 4x + 7 + x + 1 + 5x^2$	
10. $6(x^2 + 7x + 8) - 10$	
11. $9(x^2 + 4x + 1) + 8(2x^2 + x + 7)$	
12. $3(7x^2 + x + 1) + 5(x^2 + 6x + 9)$	

Session 7: Self-Reflection

Learning Target: I will simplify algebraic expressions

Briefly discuss student responses

> ➤ What did I learn today about simplifying algebraic expressions?

> ➤ How confident do I feel about simplifying algebraic expressions on my own? *(Thumbs up, down, or sideways)*

Quick Check - Form G

Name_____ Date_____

Learning Target: I will simplify algebraic expressions.

Directions: Write the simplified equivalent expression. (Work time: 4 minutes)

1. $x + x + x + x + x$	**2.** $4x + 3x + 2$
3. $4x + 6 - 2x + 3$	**4.** $5(x + 5)$
5. $7(x + 2) - 5x$	**6.** $x + 3(x + 1) - 2$

Name _____ Date _____

Learning Target: I will simplify algebraic expressions

Session 8: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➢ Simplify each algebraic expression.

Not Simplified	Simplified
1. $2x + 9 + x + 2$	
2. $x^2 + 5x + 8 + x - 2$	
3. $7(x^2 + 6) + 1$	
4. $2(x^2 + 3) + 4x^2 + 7x - 1$	

Learning Target: I will simplify algebraic expressions

Session 8: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

➢ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
5. $3x + 8 + 5x + 9 + x - 1$	
6. $7(x + 9) + 2x + 5$	
7. $9(2x^2 + 7) + 4x^2 + 8x - 5$	
8. $8(2x^2 + 7) + 5x^2 + x - 4$	

Learning Target: I will simplify algebraic expressions

Session 8: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

  ➢ Students take turns leading to simplify each algebraic expression.

Not Simplified	Simplified
9. $x^2 + 5x + 9 + x + 1 + 6x^2$	
10. $7(x^2 + 3x + 6) - 2$	
11. $3(x^2 + 9x + 1) + 7(2x^2 + x + 3)$	
12. $6(4x^2 + x + 1) + 8(x^2 + 7x + 3)$	

Session 8: Self-Reflection

Learning Target: I will simplify algebraic expressions

Briefly discuss student responses

> ➤ What did I learn today about simplifying algebraic expressions?

> ➤ How confident do I feel about simplifying algebraic expressions on my own? *(Thumbs up, down, or sideways)*

Name_____ Date_____

Learning Target: I will simplify algebraic expressions.

Directions: Write the simplified equivalent expression. (Work time: 4 minutes)

1. $x + x + x + x$	**2.** $5x + 6x + 10$
3. $3 + 9x - 6x + 4$	**4.** $6(x + 7)$
5. $4x + 2(x + 1)$	**6.** $4(x + 2) - 3 + x$

Independent Practice (You Do)

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

Title of Game: Play "**Simplifying Algebraic Expressions Match-up**!"

Number of Players: 2

Objective: To match all of your **"Problem"** cards to the equivalent **"Answer"** cards.

Materials:

➢ 1 set of **Problem** and **Answer** cards per group

➢ 1 recording sheet per player

Set-up:

➢ Deal all 10 **Problem** cards face down in a row.

➢ Deal 5 **Answer** cards face up to each player.

Directions:

➢ **Player 1** goes first
  o Take a card from the row of face down **Problem** cards and turn it face up
  o Write the problem on the recording sheet
  o And, find the answer in simplest form

➢ If **Player 1** has the **Answer** card, place it face up on top of the **Problem** card, take both cards and say:

"The like-terms in the expression are ____."

➢ If **Player 1** does not have the answer to the **Problem** card, turn the **Problem** card back over.

➢ **Players 1 and 2** alternate turns. The **winner** is the first player to match all 5 of their cards.

Storage Suggestions: Copy the **Problem (Set A)** cards and **Answer (Set A)** cards in two different colors.
Store 1 set of each in a sealable bag for each pair of students.

Set A₁

$3x + 5 + x + 1$ Set A	$3x + 5 + x - 1$ Set A		
$x^2 + 5x + 3 + x^2 - 1$ Set A	$x^2 + 5x + 3 - x^2 + 1$ Set A	$x^2 + 5x + 3 + x^2 + 1$ Set A	$x^2 + 5x + 3 - x^2 - 1$ Set A
$3(x + 5) + x - 1$ Set A	$3(x + 5) - x + 1$ Set A	$5(x + 3) + x - 1$ Set A	$5(x + 3) - x + 1$ Set A

Set A₂

$3x + 5 + x + 1$ Set A	$3x + 5 + x - 1$ Set A		
$x^2 + 5x + 3 + x^2 - 1$ Set A	$x^2 + 5x + 3 - x^2 + 1$ Set A	$x^2 + 5x + 3 + x^2 + 1$ Set A	$x^2 + 5x + 3 - x^2 - 1$ Set A
$3(x + 5) + x - 1$ Set A	$3(x + 5) - x + 1$ Set A	$5(x + 3) + x - 1$ Set A	$5(x + 3) - x + 1$ Set A

Storage Suggestions: Copy the **Problem (Set A)** cards and **Answer (Set A)** cards in two different colors.
Store 1 set of each in a sealable bag for each pair of students.

Set A₁

$4x + 6$ Set A	$4x + 4$ Set A		
$2x^2 + 5x + 2$ Set A	$5x + 4$ Set A	$2x^2 + 5x + 4$ Set A	$5x + 2$ Set A
$4x + 14$ Set A	$2x + 16$ Set A	$6x + 14$ Set A	$4x + 16$ Set A

Set A₂

$4x + 6$ Set A	$4x + 4$ Set A		
$2x^2 + 5x + 2$ Set A	$5x + 4$ Set A	$2x^2 + 5x + 4$ Set A	$5x + 2$ Set A
$4x + 14$ Set A	$2x + 16$ Set A	$6x + 14$ Set A	$4x + 16$ Set A

Problem Cards (Set B)

Storage Suggestions: Copy the **Problem (Set B)** cards and **Answer (Set B)** cards in two different colors.
Store 1 set of each in a sealable bag for each pair of students.

Set B₁	$4x + 6 + x + 2$ Set B	$4x + 6 + x - 2$ Set B	$4x + 6 - x + 2$ Set B	$4x + 6 - x - 2$ Set B
	$x^2 + 6x + 4 + x^2 - 2$ Set B	$x^2 + 6x + 4 - x^2 + 2$ Set B		
	$4(x + 6) + x - 2$ Set B	$4(x + 6) - x + 2$ Set B	$6(x + 4) + x - 2$ Set B	$6(x + 4) - x + 2$ Set B
Set B₂	$4x + 6 + x + 2$ Set B	$4x + 6 + x - 2$ Set B	$4x + 6 - x + 2$ Set B	$4x + 6 - x - 2$ Set B
	$x^2 + 6x + 4 + x^2 - 2$ Set B	$x^2 + 6x + 4 - x^2 + 2$ Set B		
	$4(x + 6) + x - 2$ Set B	$4(x + 6) - x + 2$ Set B	$6(x + 4) + x - 2$ Set B	$6(x + 4) - x + 2$ Set B

Storage Suggestions: Copy the **Problem (Set B)** cards and **Answer (Set B)** cards in two different colors.
Store 1 set of each in a sealable bag for each pair of students.

Set B₁

$5x + 8$ Set B	$5x + 4$ Set B	$3x + 8$ Set B	$3x + 4$ Set B
$2x^2 + 6x + 2$ Set B	$6x + 6$ Set B		
$5x + 22$ Set B	$3x + 26$ Set B	$7x + 22$ Set B	$5x + 26$ Set B

Set B₂

$5x + 8$ Set B	$5x + 4$ Set B	$3x + 8$ Set B	$3x + 4$ Set B
$2x^2 + 6x + 2$ Set B	$6x + 6$ Set B		
$5x + 22$ Set B	$3x + 26$ Set B	$7x + 22$ Set B	$5x + 26$ Set B

Questions for Solving Word Problems

Q1   *What is the problem about?*
Q2   *What do I need to find?*
Q3   *What do I know?*
Q4   *What can I try?*
Q5   *Does my answer make sense?*

Steps for Solving Word Problems

Q₁. What is the problem about?

Q₂. What do I need to find?

Q₃. What do I know?

Q₄. What can I try?

Q₅. Does my answer make sense?