DELTA MATH
RtI PROGRAM

Tier 3
Intervention Lessons

6.EE.2c

Learning Target: I will evaluate algebraic expressions

Readiness for 7.EE.4a: Solve equations with more than one step

Table of Contents

Tier 3 Intervention Planning Guide

Learning Target: I will evaluate 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:** Evaluate algebraic expressions using algebra tiles **Sessions 3, 4 and 5:** Evaluate algebraic expressions using drawings **Sessions 6, 7 and 8:** Evaluate algebraic expressions using conceptual understanding of substituting values for variables

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 evaluating algebraic expressions?
	    o How confident do you feel about evaluating 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

Session 1: Modeling (I Do)

6.EE.2c – Tier 3

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

James owns a pet watching business and charges $5 plus $2 per pet. The Smith family is going on vacation and would like James to watch their 1 dog and 2 cats. How much will James charge the Smith family?

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

James owns a pet watching business and charges $5 plus $2 per pet. The Smith family is going on vacation and would like James to watch their 1 dog and 2 cats. How much will James charge the Smith family?

5 dollars   plus   2 dollars for each pet

5 $+$ $2x$

Build the expression

| +1 | +1 | +1 | +1 | +1 |

| +x |
| +x |

Replace each *x* with 3
(The Smiths have 3 pets)

| +1 | +1 | +1 | +1 | +1 |

| +1 | +1 | +1 |
| +1 | +1 | +1 |
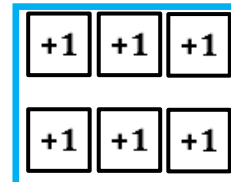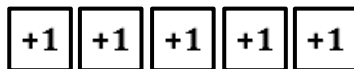
Find the total 5 $+$ 6 $=$ 11

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.

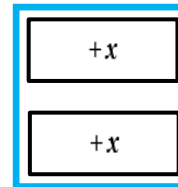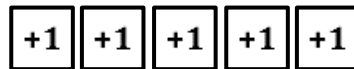**Learning Target:** I will evaluate algebraic expressions

Readiness for solving equations with more than one step

> James owns a pet watching business and charges $5 plus $2 per pet. The Smith family is going on vacation and would like James to watch their 1 dog and 2 cats. How much will James charge the Smith family?

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 James' pet watching business.

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

I need to find the how much James will charge the Smith family.

Third, I need to determine what I know.

I know that James charges $5 plus $2 per pet and I know the Smith family has 3 pets…1 dog and 2 cats
(Write "5 dollars plus 2 dollars for each pet" on the Modeling page.)

I also know that I can translate these words into an algebraic expression using a plus sign and the variable x to represent the number of pets.
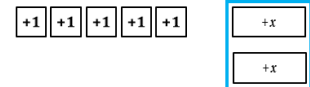(Write "5 + 2x" below the phrase.)

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

I am going to use algebra tiles to help me evaluate an algebraic expression.

I will represent the first 5 dollars using 5 "+1" tiles.
(Place 5 "+1" tiles below the digit "5".)

Next, I will use 2 "+x" tiles to represent the 2 dollars for each pet.
(Place 2 "+x" tiles below the term "2x".)

In mathematics, the word evaluate means to find the value of the expression.
(Point to the expression 5 + 2x)
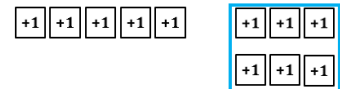
Since the Smiths have 3 pets, I need to evaluate the expression when x is 3.
(Replace each x-tile with 3 "+1" tiles.)

Now we see 6 is the value of the 2 x's and can write 5 + 6 below the tiles.
(Point to the 2 groups of 3 that show 6 and write "5 + 6" below the tiles.)

And I know that 5 + 6 is equal to 11.
(Write "= 11" next to the addition expression.)

5 dollars plus 2 dollars for each pet

5   +   2x

+1 +1 +1 +1 +1   +x / +x

+1 +1 +1 +1 +1   +1 +1 +1 / +1 +1 +1

5   +   6   =   11

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

I found that James will charge the Smiths 11 dollars. This makes sense because I modeled the situation using algebra tiles and replaced the variable x to find the value of the expression for 3 pets.

Name _____ Date _____

Learning Target: I will evaluate algebraic expressions

Session 1: Guided Practice (We Do)

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 evaluate the algebraic expression.

1. $2x + 3$, when $x = 4$ 	**2.** $x^2 + 4$, when $x = 3$
3. $x - 3$, when $x = 5$ 	**4.** $4(x - 2)$, when $x = 3$

Learning Target: I will evaluate algebraic expressions

Session 1: Guided Practice (We Do - Continued)

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

➤ Students take turns leading and repeat the steps to evaluate the algebraic expression and write the answer.

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

Learning Target: I will evaluate 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 evaluate the algebraic expression.

1. $2x$ + 3, when $x = 4$ 8 + 3 = 11	**2.** x^2 + 4, when $x = 3$ *x squared, when x = 3 is a 3 by 3 square* 9 + 4 = 13
3. x − 3, when $x = 5$ *Find the value of x. Then, find 3 less than that value.* *Removed 3* _____ 5 − 3 = 2	**4.** *Think: 4 groups of the quantity "x – 2"* 4(x − 2), when $x = 3$ *Find the value of x – 2. Then, find 4 groups of that value.* *Removed 2* 4(1) = 4

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.

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	$+x$	$+x$	$+x$	$+x$

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

Use for Problem 1	Use for Problem 2
$2x + 3$, when $x = 4$	$x^2 + 4$, when x = 3

Use for Problem 3	Use for Problem 4
$x - 3$, when $x = 5$	$4(x - 2)$, when $x = 3$

Use for Problem 5	Use for Problem 6
$3 + 2x$, when $x = 4$	$3x - 4$, when $x = 2$

Use for Problem 7	Use for Problem 8
$x^2 + 2$, when $x = 3$	$3(x - 2)$, when $x = 4$

Use for Problem 9	Use for Problem 10
$3x + 10$, when $x = 2$	$x^2 + 2$, when $x = 4$

Use for Modelling	
$5 + 2x$, when $x = 3$	

Session 1: Self-Reflection

Learning Target: I will evaluate algebraic expressions

Briefly discuss student responses

> What did I learn today about evaluating algebraic expressions?

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

Quick Check - Form A

Name_____ Date_____

Learning Target: I will evaluate algebraic expressions.

Directions: Evaluate each expression for the given value of *x*. (Work time: 4 minutes)

1. $2x + 4$, when $x = 3$	**2.** $10 - 2x$, when $x = 2$
3. $x^3 + 6$, when $x = 4$	**4.** $4(x + 2)$, when $x = 5$
5. $14 - 2x$, when $x = 3$	**6.** $x^2 - 4$, when $x = 3$

Growth Chart

Name_____ Date_____

Learning Target: I will evaluate algebraic expressions.

Goal: 5 out of 6 correct

Number Correct

(y-axis: 1, 2, 3, 4, 5, 6)

(x-axis: A, B, C, D, E, F, G, H)

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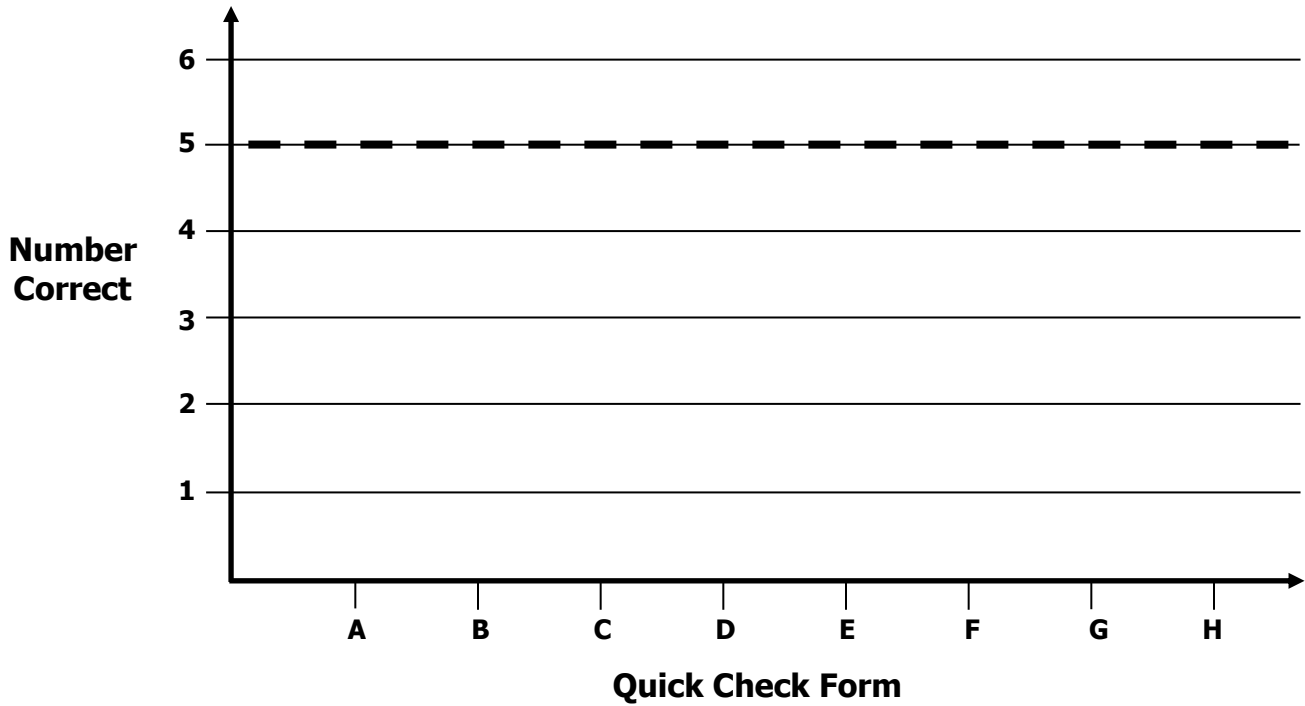
Intervention	Date	Score
Session 1:		
Session 2:		
Session 3:		
Session 4:		
Session 5:		
Session 6:		
Session 7:		
Session 8:		

Learning Target: I will evaluate algebraic expressions

Session 2: Guided Practice (We Do)

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 evaluate the algebraic expression.

1. $2x$ + 1, when $x = 5$	**2.** x^2 + 3, when $x = 4$
3. x − 2, when $x = 7$	**4.** $3(x - 1)$, when $x = 5$

Learning Target: I will evaluate algebraic expressions

Session 2: Guided Practice (We Do - Continued)

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

➤ Students take turns leading and repeat the steps to evaluate the algebraic expression and write the answer.

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

Session 2: Self-Reflection

Learning Target: I will evaluate algebraic expressions

Briefly discuss student responses

> What did I learn today about evaluating algebraic expressions?

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

Quick Check - Form B

DELTA MATH — Rtl PROGRAM

Name_____ Date_____

Learning Target: I will evaluate algebraic expressions.

Directions: Evaluate each expression for the given value of *x*. (Work time: 4 minutes)

1. $6 + 2x$, when $x = 4$	**2.** $5x - 4$, when $x = 6$
3. $x^2 + 4$, when $x = 3$	**4.** $3(x - 2)$, when $x = 9$
5. $20 - 3x$, when $x = 4$	**6.** $x^3 + 2$, when $x = 4$

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

Amy and her family went to a Detroit Tigers baseball game and she purchased a refillable souvenir cup. The cup cost $12 to purchase and $2 additional for each refill. If Amy refilled the cup 3 times, what was her total cost for the cup and refills?

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

> Amy and her family went to a Detroit Tigers baseball game and she purchased a refillable souvenir cup. The cup cost $12 to purchase and $2 additional for each refill. If Amy refilled the cup 3 times, what was her total cost for the cup and refills?

Total Cost   =   Cup   +   Refills

                       12   + $2x$

+ + + + + + +
+ + + +

$\boxed{\begin{array}{c} +x \\ +x \end{array}}$

↑

$\boxed{\begin{array}{c} + + + \\ + + + \end{array}}$ (Refilled 3 times)

Total Cost   =   12   +   2(3)

Total Cost   =   12   +   6

Total Cost   =   18 dollars

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 3: Modeling *(I Do - Teacher Notes)*

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

> Amy and her family went to a Detroit Tigers baseball game and she purchased a refillable souvenir cup. The cup cost $12 to purchase and $2 additional for each refill. If Amy refilled the cup 3 times, what was her total cost for the cup and refills?
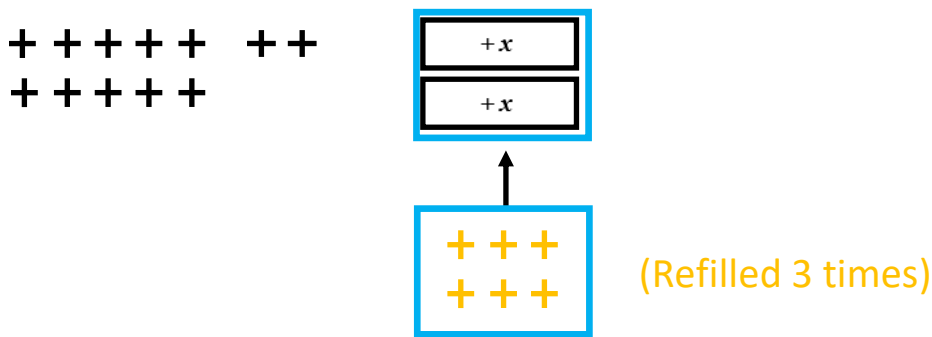
I am going to think aloud to model solving this problem.

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

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

This problem is Amy purchasing and refilling a souvenir cup.

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

I need to find the total cost for purchasing the cup and refilling the cup.

Third, I need to determine what I know.

I know that the total cost is equal to the initial cost of the cup plus the cost of each refill.
(Write "Total Cost = Cup + Refills".)

The initial cost of the cup is $12. *(Write "12" below the word "Cup".)*

And it cost $2 to refill the cup. *(Write "+ 2x".)* **And Amy refilled the cup 3 times.**

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

I am going to use the equation and create a math drawing to help me model this situation.

I will draw 12 plus signs in a group of 10 and 2 more to represent the 12 dollars cost of the cup. (Draw the plus signs.)

Next, I will draw 2 x-tiles to represent the 2 dollars for each refill.
(Draw 2 x-tiles)

Since Amy purchase 3 refills, I need to replace each x-tile with 3 plus signs
(Draw 2 sets of 3 "+"s with an arrow pointing to the 2 x-tiles.)

The total cost is equal to 12 plus 2 groups of 3.
(Write "Total Cost = 12 + 2(3)" below the drawing.)

And…2 groups of 3 is equal to 6…
(Write "Total Cost = 12 + 6".)

Which is equal to 18 dollars.
(Write "Total Cost = 18 dollars")

Total Cost	=	Cup	+	Refills
		12	+	2x

+++++ ++
+++++
    +x
    +x

+++
+++ (Refilled 3 times)
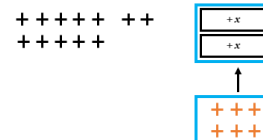
Total Cost = 12 + 2(3)

Total Cost = 12 + 6

Total Cost = 18 dollars

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

I found that Amy's family will pay $18 to buy the souvenir cup and refill it 3 times.

This makes sense because I modeled the situation using an equation and drawing algebra tiles. Then I substituted 3 into the variable x to find the total after 3 refills.

Learning Target: I will evaluate algebraic expressions

Session 3: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➢ Say, draw and evaluate the algebraic expression.

1. $2x + 1$, when $x = 5$	**2.** $x - 4$, when $x = 9$
3. $x^2 - 4$, when $x = 3$	**4.** $3(x - 2)$, when $x = 6$

Learning Target: I will evaluate algebraic expressions

Session 3: Guided Practice (We Do - Continued)

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

➢ Students take turns leading and to say, draw and evaluate the algebraic expression.

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

Learning Target: I will evaluate algebraic expressions

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

We Do Together: (Teacher Actions)

➢ Say, draw and evaluate the algebraic expression.

1. $2x + 1$, when $x = 5$ $2x + 1$ = 2(5) + 1 = 10 + 1 = 11	**2.** $x - 4$, when $x = 9$ $x - 4$ = (9) − 4 = 5 *Find the value of x – 2. Then, find 3 groups of that value.*
3. *Find the value of x^2. Then, find 4 less than that value.* $x^2 - 4$, when $x = 3$ *x squared, when x = 3 is a 3 by 3 square* $(3)^2$ − 4 9 − 4 5	**4.** *Think: 3 groups of the quantity "x – 2"* $3(x - 2)$, when $x = 6$ *Removed 2* *3 groups of 4* 3(4) 12

Session 3: Self-Reflection

Learning Target: I will evaluate algebraic expressions

Briefly discuss student responses

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

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

Quick Check - Form C

Name_____ Date_____

Learning Target: I will evaluate algebraic expressions.

Directions: Evaluate each expression for the given value of *x*. (Work time: 4 minutes)

1. $9x + 3$, when $x = 2$	**2.** $12 - 3x$, when $x = 3$
3. $x^3 + 2$, when $x = 3$	**4.** $4(x + 7)$, when $x = 2$
5. $16 - 3x$, when $x = 2$	**6.** $x^2 - 1$, when $x = 4$

Learning Target: I will evaluate algebraic expressions

Session 4: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➤ Say, draw and evaluate the algebraic expression.

1. $3x + 1$, when $x = 2$	**2.** $x - 2$, when $x = 10$
3. $x^2 - 3$, when $x = 5$	**4.** $3(x - 2)$, when $x = 4$

Learning Target: I will evaluate algebraic expressions

Session 4: Guided Practice (We Do - Continued)

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

➤   Students take turns leading and to say, draw and evaluate the algebraic expression.

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

Session 4: Self-Reflection

Learning Target: I will evaluate algebraic expressions

Briefly discuss student responses

➢ What did I learn today about evaluating algebraic expressions?

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

Quick Check - Form D

Name_____ Date_____

Learning Target: I will evaluate algebraic expressions.

Directions: Evaluate each expression for the given value of x. (Work time: 4 minutes)

1. $5x + 4$, when $x = 3$	**2.** $6x - 10$, when $x = 5$
3. $x^3 + 4$, when $x = 2$	**4.** $2(x - 1)$, when $x = 6$
5. $16 - x$, when $x = 5$	**6.** $x^2 + 5$, when $x = 6$

Learning Target: I will evaluate algebraic expressions

Session 5: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➢ Say, draw and evaluate the algebraic expression.

1. $2x + 1$, when $x = 3$	**2.** $x - 4$, when $x = 7$
3. $x^2 - 4$, when $x = 4$	**4.** $3(x - 2)$, when $x = 5$

Learning Target: I will evaluate algebraic expressions

Session 5: Guided Practice (We Do - Continued)

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

➢ Students take turns leading and to say, draw and evaluate the algebraic expression.

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

Session 5: Self-Reflection

Learning Target: I will evaluate algebraic expressions

Briefly discuss student responses

➢ What did I learn today about evaluating algebraic expressions?

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

Quick Check - Form E

Name_____ Date_____

Learning Target: I will evaluate algebraic expressions.

Directions: Evaluate each expression for the given value of *x*. (Work time: 4 minutes)

1. $2x + 4$, when $x = 3$	**2.** $10 - 2x$, when $x = 2$
3. $x^3 + 6$, when $x = 4$	**4.** $4(x + 2)$, when $x = 5$
5. $14 - 2x$, when $x = 3$	**6.** $x^2 - 4$, when $x = 3$

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

Kari went to a family fun center with go karts, mini golf, batting cages, arcades and more. It was Kids' Night with special prices that included $8 to enter and $2 additional to participate in each activity. If Kari participated in 6 activities, what was the total cost for her entry and activities?

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

Kari went to a family fun center with go karts, mini golf, batting cages, arcades and more. It was Kids' Night with special prices that included $8 to enter and $2 additional to participate in each activity. If Kari participated in 6 activities, what was the total cost for her entry and activities?

Total Cost = Entry + Activities

$$= \quad 8 \quad + \quad 2x \qquad \textit{2 dollars for each activity}$$

$$= \quad 8 \quad + \quad 2(6) \qquad \textit{Participated in 6 activities}$$

$$= \quad 8 \quad + \quad 12 \qquad \textit{2 x 6 = 12}$$

$$= \quad 20 \text{ dollars}$$

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

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

> Kari went to a family fun center with go karts, mini golf, batting cages, arcades and more.
> It was Kids' Night with special prices that included $8 to enter and $2 additional to participate in each activity. If Kari participated in 6 activities, what was the total cost for her entry and activities?

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.

This problem is about Kari going to a family fun center for Kid's Night.

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

I need to find her total cost for entry and activities.

Third, I need to determine what I know.

I know that the total cost is equal to the cost to enter plus an additional cost to participate in each activity.
(Write "Total Cost = Entry + Activities".)

And, I know that the cost to enter is $8, an additional $2 for each activity and she participated in 6 activities.
(Write "= 8 + 2x" and "2 dollars for each activity" below the total cost equation.)

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

I am going to use the equation to help me model this situation by evaluating it when the number of activities is equal to 6.
(Point to "8 + 2x" and write "8 + 2(6)" and "Participated in 6 activities".)

Next, I remember replacing 2 x's with a number to end up with 2 groups of that number…which can represent multiplication.

And, 2 groups of 6 is 12.
(Point to "2(6)" and write "8 + 12" and "2 x 6 = 12".)

Now, I know that the total cost is equal to 20 dollars by adding 8 plus 12.
(Write "20 dollars" and point to "8 + 12".)

Total Cost	=	Entry	+	Activities	
	=	8	+	$2x$	*2 dollars for each activity*
	=	8	+	2(6)	*Participated in 6 activities*
	=	8	+	12	*2 x 6 = 12*
	=	20 dollars			

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

I found that Kari paid $20 for a night of fun at the family fun center.

This makes sense because I modeled the situation using an equation and visualized using algebra tiles to help me substitute 6 into the variable x to find the total after participating in 6 activities.

6.EE.2c – Tier 3

Learning Target: I will evaluate algebraic expressions

Session 6: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➢ Use substitution to evaluate each algebraic expression.

1. $2x + 1$, when $x = 8$	**2.** $x - 4$, when $x = 13$
3. $x^2 - 4$, when $x = 7$	**4.** $3(x - 2)$, when $x = 9$

Learning Target: I will evaluate algebraic expressions

Session 6: Guided Practice (We Do - Continued)

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

➢ Students take turns leading to evaluate each algebraic expression using substitution.

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

Learning Target: I will evaluate algebraic expressions

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

We Do Together: (Teacher Actions)

- ➢ Use substitution to evaluate each algebraic expression.

1. *Think: 1 more than 2 times 8* $2x + 1$, when $x = 8$ $\begin{aligned} 2x + 1 &= 2(8) + 1 \\ &= 16 + 1 \\ &= 17 \end{aligned}$	**2.** *Think: 4 less than 13* $x - 4$, when $x = 13$ $\begin{aligned} x - 4 &= (13) - 4 \\ &= 9 \end{aligned}$
3. *Think: 4 less than a 7 by 7 square* $x^2 - 4$, when $x = 7$ *Find the value of x^2. Then, find 4 less than that value.* $\begin{aligned} x^2 - 4 &= (7)^2 - 7 \\ &= 49 - 7 \\ &= 42 \end{aligned}$	**4.** *Think: 3 groups of the quantity "9 – 2"* $3(x - 2)$, when $x = 9$ *Find the value of $x - 2$. Then, find 3 groups of that value.* $\begin{aligned} 3(x - 2) &= 3(9 - 2) \\ &= 3(7) \\ &= 21 \end{aligned}$

Session 6: Self-Reflection

Learning Target: I will evaluate algebraic expressions

Briefly discuss student responses

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

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

Quick Check - Form F

Name_____ Date_____

Learning Target: I will evaluate algebraic expressions.

Directions: Evaluate each expression for the given value of *x*. (Work time: 4 minutes)

1. $6 + 2x$, when $x = 4$	**2.** $5x - 4$, when $x = 6$
3. $x^2 + 4$, when $x = 3$	**4.** $3(x - 2)$, when $x = 9$
5. $20 - 3x$, when $x = 4$	**6.** $x^3 + 2$, when $x = 4$

Name _____ Date _____

Learning Target: I will evaluate algebraic expressions

Session 7: Guided Practice (We Do)

We Do Together: (Teacher Actions)

 ➤ Use substitution to evaluate each algebraic expression.

1. $6x + 1$, when $x = 8$	**2.** $x - 5$, when $x = 13$
3. $x^2 - 3$, when $x = 9$	**4.** $4(x - 2)$, when $x = 7$

Learning Target: I will evaluate algebraic expressions

Session 7: **Guided Practice** (We Do - Continued)

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

> ➤ Students take turns leading to evaluate each algebraic expression using substitution.

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

Session 7: Self-Reflection

Learning Target: I will evaluate algebraic expressions

Briefly discuss student responses

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

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

Quick Check - Form G

Name_____ Date_____

Learning Target: I will evaluate algebraic expressions.

Directions: Evaluate each expression for the given value of *x*. (Work time: 4 minutes)

1. $9x + 3$, when $x = 2$	**2.** $12 - 3x$, when $x = 3$
3. $x^3 + 2$, when $x = 3$	**4.** $4(x + 7)$, when $x = 2$
5. $16 - 3x$, when $x = 2$	**6.** $x^2 - 1$, when $x = 4$

Learning Target: I will evaluate algebraic expressions

Session 8: Guided Practice (We Do)

We Do Together: (Teacher Actions)

➢ Use substitution to evaluate each algebraic expression.

1. $7x + 1$, when $x = 9$	**2.** $x - 6$, when $x = 15$
3. $x^2 - 4$, when $x = 8$	**4.** $8(x - 2)$, when $x = 7$

Learning Target: I will evaluate algebraic expressions

Session 8: Guided Practice (We Do - Continued)

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

➢ Students take turns leading to evaluate each algebraic expression using substitution.

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

Session 8: Self-Reflection

Learning Target: I will evaluate algebraic expressions

Briefly discuss student responses

> What did I learn today about evaluating algebraic expressions?

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

Quick Check - Form H

Name_____ Date_____

Learning Target: I will evaluate algebraic expressions.

Directions: Evaluate each expression for the given value of *x*. (Work time: 4 minutes)

1. $5x + 4$, when $x = 3$	**2.** $6x - 10$, when $x = 5$
3. $x^3 + 4$, when $x = 2$	**4.** $2(x - 1)$, when $x = 6$
5. $16 - x$, when $x = 5$	**6.** $x^2 + 5$, when $x = 6$

Learning Target: I will evaluate algebraic expressions

Readiness for solving equations with more than one step

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

Number of Players: 2

Objective: To match all of your **"Problem"** cards to the **"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 expression evaluated at ____ is ____."

➢ 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.

Problem Cards (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

$2x + 3$ when $x = 4$ Set A	$3x + 4$ when $x = 2$ Set A	$2x - 3$ when $x = 4$ Set A	$3x - 4$ when $x = 2$ Set A
$x^2 + 4$ when $x = 3$ Set A	$x^2 + 3$ when $x = 2$ Set A	$x^2 - 4$ when $x = 5$ Set A	$x^2 - 3$ when $x = 2$ Set A
$3(x + 2)$ when $x = 4$ Set A	$2(x + 3)$ when $x = 4$ Set A		

Set A₂

$2x + 3$ when $x = 4$ Set A	$3x + 4$ when $x = 2$ Set A	$2x - 3$ when $x = 4$ Set A	$3x - 4$ when $x = 2$ Set A
$x^2 + 4$ when $x = 3$ Set A	$x^2 + 3$ when $x = 2$ Set A	$x^2 - 4$ when $x = 5$ Set A	$x^2 - 3$ when $x = 2$ Set A
$3(x + 2)$ when $x = 4$ Set A	$2(x + 3)$ when $x = 4$ 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

11 Set A	10 Set A	5 Set A	2 Set A
13 Set A	7 Set A	21 Set A	1 Set A
12 Set A	14 Set A		

Set A₂

11 Set A	10 Set A	5 Set A	2 Set A
13 Set A	7 Set A	21 Set A	1 Set A
12 Set A	14 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

$7x + 3$ when $x = 9$ Set B	$8x + 4$ when $x = 6$ Set B	$7x - 3$ when $x = 9$ Set B	$8x - 4$ when $x = 6$ Set B
$x^2 + 4$ when $x = 7$ Set B	$x^2 + 3$ when $x = 8$ Set B	$x^2 - 4$ when $x = 7$ Set B	$x^2 - 6$ when $x = 9$ Set B
$9(x + 2)$ when $x = 7$ Set B	$8(x + 5)$ when $x = 4$ Set B		

Set B₂

$7x + 3$ when $x = 9$ Set B	$8x + 4$ when $x = 6$ Set B	$7x - 3$ when $x = 9$ Set B	$8x - 4$ when $x = 6$ Set B
$x^2 + 4$ when $x = 7$ Set B	$x^2 + 3$ when $x = 8$ Set B	$x^2 - 4$ when $x = 7$ Set B	$x^2 - 6$ when $x = 9$ Set B
$9(x + 2)$ when $x = 7$ Set B	$8(x + 5)$ when $x = 4$ 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

66	52	60	44
Set B	Set B	Set B	Set B
53	67	45	75
Set B	Set B	Set B	Set
81	72		
Set B	Set B		

Set B₂

66	52	60	44
Set B	Set B	Set B	Set B
53	67	45	75
Set B	Set B	Set B	Set B
81	72		
Set B	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?*

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?