

Math: Grade 6, Lesson 2, Write and Evaluate Expressions

Lesson Focus: Write and evaluate expressions

Practice Focus: Evaluate expressions at specific values of their variables.

Objective: Students will use descriptions to write and evaluate expressions with a focus on appropriate units.

Key Vocabulary: Expression, variable, units, evaluate

TN Standard: 6.EE.A.2c


Teacher Materials:

- White board and markers
- Projected charts for guided practice

Student Materials:

- Paper and pencil (or writing instrument)
- Calculator allowed, but not required

Teacher Do	Student Do
<p><u>Opening (1 minute)</u></p> <p>Hello! Welcome to Tennessee's At Home Learning Series for math! Today's lesson is for all our 6th graders out there, though all children are welcome to tune in. This lesson is the 2nd in our series.</p> <p>My name is ____ and I'm a ____ grade teacher in Tennessee schools! I'm so excited to be your teacher for this lesson! Welcome to my virtual classroom!</p> <p>If you didn't see our previous lesson, you can find it on http://www.tn.gov/education. You can still tune in to today's lesson if you haven't see any of our others. But, it might be more fun if you first go back and watch our other lessons since we'll be talking about things we learned previously.</p> <p>Today we will be learning about how to write and evaluate expressions in mathematics! Before we get started, to participate fully in our lesson today, you will need:</p> <ul style="list-style-type: none"> • Paper and pencil (or writing instrument) • Calculator is allowed, but not required <p>Ok, let's begin!</p>	<p>Students get materials ready for the lesson.</p>
<p><u>Intro (4-5 minutes)</u></p> <p>[In this lesson, when students write expressions, make sure they are as specific as possible. Students should understand the importance of specifying units when defining letters. For example, students should say, "Let k = Carolyn's weight in pounds" instead of "Let k = Carolyn's weight" because weight is not a number until it is specified by pounds, ounces, grams, etc. This will help solidify previous learning.]</p>	<p>Students respond to questions</p>

<p>Welcome! I am so glad to have you hang out with us today. Today we are going to spend some time working with expressions. Who remembers what an expression is? [Pause]</p> <p>Expressions are: Numbers, symbols and operators (such as + and \times) grouped together that show the value of something.</p> <p>In this lesson, we will work with linear expressions, which means we will have a variable. Everyone tell me what a variable is! [Pause]</p> <p>I heard you! A variable is a symbol (such as a letter, you got it!) that represents a number (It's like a placeholder for a number).</p> <p>Let's get started!</p> <p>How can we show a number increased by 2? [Pause]</p> <p>[Write $a + 2$ or $2 + a$]</p> <p>Can you prove this using a model? [Prompt with asking them to use a tape diagram after a brief pause]</p> <p><small>Yes, I can use a tape diagram.</small></p>  <p>In this lesson, you will connect real-world problems to addition and subtraction expressions. What story problem could you make up to go along with the expression $a + 2$?</p> <p>[Allow a few moments for students to form realistic scenarios. As students have time share these, pretend to re-state them.</p> <p>Answers will vary. Ronnie has some apples, but Gayle has two more apples than Ronnie. How many apples does Gayle have?</p> <p>For example: John rode his bike, b miles yesterday. Today he rode 2 miles more than yesterday.]</p>	<p>Students draw a model</p>
<p>Teacher Model (8-10 minutes)</p> <p>I'm excited about building on your previous knowledge today! I want to start by discussing the importance of being SPECIFIC in naming variables. We need to be SO clear! We don't want to wonder what we are working with and don't forget units of measure. They matter. What are some units of measure you have learned about in the past? [Possible answers: Feet, miles, yards, cups, hours, etc....]</p> <p>Why do you think we need to consider units in our answers?</p> <p>[Pause. Give students an example to help them understand.] When we measure height of a baby, we measure in inches, but a man is measured in feet.</p> <p>Here we go!</p> <p>Example 1:</p> <p>Read the variables listed in the table and correct them for specificity. [see below for full table.]</p>	<p>Students respond to teacher</p>

[Give wait time for students to determine ways to be more specific in their descriptions. After allowing students time to respond, fill in the chart and read each of the possible correct responses. You may emphasize an additional “correct answer”, if time permits.]

Students, let’s go over possible answers. Remember, units may vary, so I have a few possible ways that these variables can be described. You may have selected a different unit (such as miles per hour for Joshua’s speed) and you are correct. This shows us why we must be specific to our given problems. We want to know what we are actually finding.

Exercises

1. Read the variable in the table, and improve the description given, making it more specific.

Variable	Incomplete Description	Complete Description with Units
Joshua’s speed (J)	Let J = Joshua’s speed	
Rufus’s height (R)	Let R = Rufus’s height	
Milk sold (M)	Let M = the amount of milk sold	
Colleen’s time in the 40 meter hurdles (C)	Let C = Colleen’s time	
Sean’s age (S)	Let S = Sean’s age	

Correct responses :

Complete Description with Units
<i>Let J = Joshua’s speed in meters per second</i>
<i>Let R = Rufus’s height in centimeters</i>
<i>Let M = the amount of milk sold in gallons</i>
<i>Let C = Colleen’s time in seconds</i>
<i>Let S = Sean’s age in years</i>

Example 2:

Kathleen lost a tooth today. Now she has lost 4 more than her sister Cara lost. 1. Write an expression to represent the number of teeth Cara has lost.

Hint: Let k = the number of teeth Kathleen lost.

Expression:

You are right! It is $k - 4$

Write an expression to represent the number of teeth Kathleen has lost.

Let c = the number of teeth Cara lost.

Expression:

Yes! It is $c + 4$

If Cara lost 3 teeth, how many teeth has Kathleen lost?

Students respond with ideas of ways to “completely” describe each variable.

Give students time to respond with possible expressions.

You are correct! Kathleen has lost 7 teeth.	
<p>Guided Practice (10 minutes)</p> <p>You are doing great with this lesson, so we are going to jump into you helping me!</p> <p>Read the following story descriptions, and write an addition or subtraction expression for each one in the table. I've done the first two for you. Let's talk through those.</p>	It is VERY important to have wait time with this activity. Encourage students to answer and "share".

Story Problem	Description with Units	Expression	Evaluate the Expression If:	Show Your Work and Evaluate
Gregg has two more dollars than his brother Jeff. Write an expression for the amount of money Gregg has.	Let j = Jeff's money in dollars	$j + 2$	Jeff has \$12.	$ \begin{array}{r} j + 2 \\ 12 + 2 \\ 14 \\ \text{Gregg has \$14.} \end{array} $
Gregg has two more dollars than his brother Jeff. Write an expression for the amount of money Jeff has.	Let g = Gregg's money in dollars	$g - 2$	Gregg has \$14.	$ \begin{array}{r} g - 2 \\ 14 - 2 \\ 12 \\ \text{Jeff has \$12.} \end{array} $

I will give you time to try the next two and we will share! [It is VERY important to have wait time with this activity. Encourage students to answer and "share".]

Abby read 8 more books than Kristen in the first marking period. Write an expression for the number of books Abby read.			Kristen read 9 books in the first marking period.	
Ian scored 4 fewer goals than Julia in the first half of the season. Write an expression for the number of goals Ian scored.			Julia scored 13 goals.	

[After you have given students time to respond, go over the answers (emphasizing them as if the students are with you...possibly calling on one and writing the answer as if he/she were there)]

PBS Lesson Series

Abby read 8 more books than Kristen in the first marking period. Write an expression for the number of books Abby read.	Let k = the number of books Kristen read in the first marking period	$k + 8$	Kristen read 9 books in the first marking period.	$k + 8$ $9 + 8$ 17 <i>Abby read 17 books in the first marking period.</i>
Ian scored 4 fewer goals than Julia in the first half of the season. Write an expression for the number of goals Ian scored.	Let j = the number of goals scored by Julia	$j - 4$	Julia scored 13 goals.	$j - 4$ $13 - 4$ 9 <i>Ian scored 9 goals in the first half of the season.</i>
Independent Practice Great work! Today, we reviewed ways to write and evaluate expressions. I hope you're seeing the significance to the units as we name a variable for an expression! You sure did a great job! After the video, you will have some problems to practice on your own. Good luck and do your best!				
Closing (1 min) <ul style="list-style-type: none"> Boys and Girls, I enjoyed learning about writing an evaluating expressions with you today! Thank you for inviting me into your home. I look forward to seeing you in our next lesson in Tennessee's At Home Learning Series! Bye! 				

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