

Math: Grade 3, Lesson 2, Multiplication and Array Model

Lesson Objective: Multiplication and Array Model

Practice Focus: Relate multiplication to the array model.

TN Standard: 3.OA.A.1

Teacher Materials:

- Counters
- White board and markers

Student Materials:

- Paper and pencil, and a surface to write on
- the student packet for Math, Grade 3, Lesson 2 which can be found at www.tn.gov/education

Teacher Do	Student Do
<p>Opening</p> <p>Hello! Welcome to Tennessee's At Home Learning Series for math! Today's lesson is for all our 3rd graders out there, though all children are welcome to tune in. This lesson is the second 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>Today we will be learning about the relationship between multiplication and the array model. If you didn't see our previous lesson, you can find it at www.tn.gov/education. You can still tune in to today's lesson if you haven't seen 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. Before we get started, to participate fully in our lesson today, you will need:</p> <ul style="list-style-type: none"> • Paper and a pencil, and a surface to write on • the student packet for Math, Grade 3, Lesson 2 which can be found at www.tn.gov/education <p>Okay, let's begin!</p>	<p>Students get materials ready for the lesson.</p>
<p>Intro</p> <p>Yesterday, we reviewed interpreting multiplication equations as equal groups. We'll take it a step further today by using array models for our equal groups in our multiplication equations.</p> <p>Let's warm up with a story problem that reviews our learning from yesterday. I will read the problem to you and give you a moment to think about its solution.</p>	



Jordan uses 3 lemons to make one pitcher of lemonade. He makes 4 pitchers. How many lemons does he use altogether?

Student answers.

How does this picture relate to our problem? [Pause.] The first group of 3 lemons shows how many lemons you need to make one pitcher. Our problem says we make four pitchers so that's why the picture shows 4 equal groups of 3 lemons.

Because we have equal groups, I can write this as the multiplication equation $4 \times 3 = 12$. I know it's 12 because I can skip count by threes to get the total. [Teacher points to each group as she counts.] 3, 6, 9, 12. So, we need 12 lemons to make our 4 pitchers of lemonade.

Teacher Model

The picture in the lemonade problem shows four equal groups of lemons. An array model is another way to show equal groups. Arrays are organized pictures that show equal sized groups arranged by rows and columns. For the lemonade problem, I can draw an array to show 4 equal groups of 3 lemons. Each row will represent one group of 3 lemons.

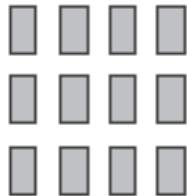
[Teacher draws the array below and explains to students.]

Let's skip count the rows to make sure we have shown $4 \times 3 = 12$. [Point and count.] 3, 6, 9, 12.

Student skip counts.





Look at this array. [Show array to students.]



How many rectangles are in the top row? [Pause.]

Student answers.

Yes, the size of one row is 4 rectangles. Each row can also be called a group of 4 rectangles.

<p>How many groups of 4 are in the array? [Pause.]</p> <p>Yes, there are 3 groups of 4 in the array. I can write a multiplication equation to match this array. First, I write the number of equal groups and then I write the size of the group. So, $3 \times 4 = 12$.</p>	<p>Student answers</p>
<p>Guided Practice</p> <p>Look at the car array. [Show picture.] There are 2 cars in each row. How many cars are in 4 rows? [Pause.] There are 2, 4, 6, 8 total cars.</p> <p>What multiplication expression can we write to describe this array? [Pause.] The multiplication expression we can write is 4×2 because that's the same as 4 groups of 2 cars.</p>  <p>This next picture shows 3 equal groups of 5 triangles. On your paper, re-draw this picture as an array with 3 rows of 5 triangles. [Pause while student works.]</p>  <p>[Draw the array on the white board.]</p> <pre> Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ </pre> <p>Does your array look like mine? [Pause.] Good! There are 3 rows in the array just like there are 3 equal groups in the original drawing. Each row has 5 triangles just like each group in the original drawing.</p> <p>Now, I want you to write a multiplication expression to describe your array. Remember, an expression is different from an equation because it doesn't have an equal sign. [Pause.] The multiplication expression is 3×5. Now, skip</p>	<p>Student answers.</p> <p>Student answers.</p> <p>Student draws.</p> <p>Student answers.</p> <p>Student writes.</p> <p>Student answers.</p>

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count to find the total number of triangles in the 3 rows. [Pause.] There are 5, 10, 15 triangles total.	
<u>Independent Practice</u> Today we have practiced relating multiplication to the array model. 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!	
<u>Closing</u> Boys and Girls, I enjoyed learning about math 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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