

Math: Grade 2, Lesson 5, Represent a three-digit number in more than one way

Lesson Objective: Use bundling and place value mats to represent a three-digit number as groups of hundreds, tens, and ones in more than one way.

Practice Focus: Represent a three digit number as groups of hundreds, tens, and ones in more than one way.

TN Standard: 2.NBT.A.1

Teacher Materials:

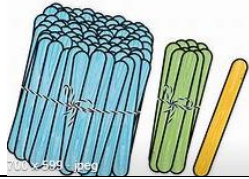
- Craft sticks to make bundles of tens and hundreds (concrete)
- A whiteboard or paper for modeling place value charts and writing expressions (representation, abstract)

Student Materials:

- pencil and paper, and a surface to write on
- The student packet for Math, Grade 2, Lesson 5 which can be found at www.tn.gov/education

Teacher Do	Student Do
<p>Opening (2 minutes)</p> <p>Hello! Welcome to Tennessee's At Home Learning Series for math! Today's lesson is for all our 2nd graders out there, though all children are welcome to tune in. This lesson is the fifth 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 representing a three-digit number in mathematics! Before we get started, to participate fully in our lesson today, you will need:</p> <ul style="list-style-type: none">• Paper, pencil and a surface to write on• The student packet for Math, Grade 2, Lesson 4 which can be found at www.tn.gov/education <p>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 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>Ok, let's begin!</p>	<p>Student gathers materials.</p>
<p>Intro (3 minutes)</p> <p>Yesterday, we made models using craft sticks and drawings. We built numbers two different ways: using only ones and then using ones and ten bundles. The models that you draw do not need to be perfect. [Draw a place value mat with ones,</p>	

tens, and hundreds.] **This is what my place value mat looks like. Can you draw one?** [Pause.] **Now let's add models of our ones, tens, and hundreds.** [Draw a model of a one, a ten, and a hundred on the place value mat.] **This is what mine look like. Can you draw yours?** [Pause.] **Remember that our models do not have to be perfect.**



Student draws place value mat and a model of ones, tens, and hundreds.

Teacher Model (13 minutes)

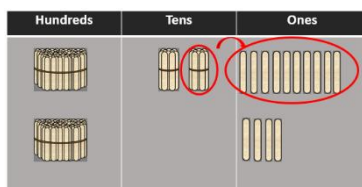
Please draw a place value mat that includes hundreds, tens, and ones. [Pause.]

Please draw a model for the number 224. [Pause.] [Teacher has models ready to show 2 bundles of 100 sticks, 2 bundles of ten sticks, and 4 individual sticks and for the place value math that has a column for hundreds.]

Now please write 224 with numbers and words that match your models. [Pause.] [Teacher has written these answers on model and covered them with Post-its. Remove the Post-its.] **We could write 224, two hundred twenty four, 2 hundreds + 2 tens + 4 ones, and $200 + 20 + 4$.**

Over the last week, we have been thinking about building numbers in multiple ways. I am wondering if there are other ways to model 224. Jump up and down if you can think of other models. [Pause.]

I can almost feel you jumping! Yes, we can also build 224 by decomposing the hundreds and tens. Let's get started by going back to our model. We have decomposed tens before, changing the ten bundle into 10 ones. I am going to do that here. [Unbundle a group of ten and move then ten ones into the ones place. Draw the representation on the place value chart. Explain as you work.] **I am going to unbundle a group of ten, and then move the ten ones into the ones place. On my place value may, I am going to circle a group of ten, draw an arrow from that ten to the ones column, and then draw ten ones.**



Student draws place value mat.

Student draws model.

Student writes 224 in multiple ways.

Student jumps up and down.

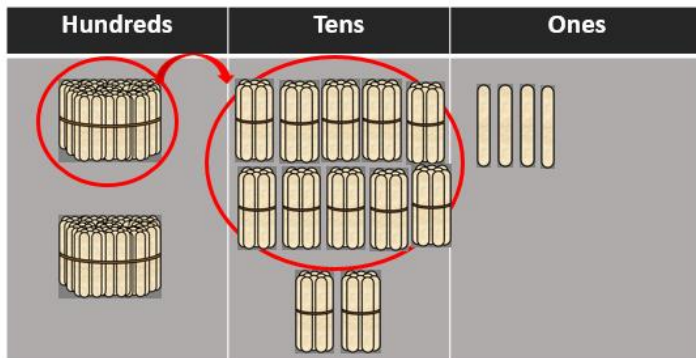
How many names does our new model have? [Pause.] **Write all of the names that you can think of under your model.**

[Pause.] **We can add 2 hundreds + 1 ten + 14 ones, and 200 + 10 + 14.**

Could we unbundle another ten? [Pause.] **Think about what that would look like.** [Pause.]

Let's go back to our original model, 224. Two hundreds, two tens, and four ones. Could we unbundle a hundred? **Shake your head "Yes" or "No".** [Pause.]

Let's try it! You watch and think while I work. [Pause.] [Model the original number with craft sticks and drawings on the place value chart. Unbundle a hundred into the 10 tens and move them to the tens place. Do the same with the drawing on the place value chart. Explain as you model.] **I am unbundling a hundred and moving ten tens into the tens column. On my representation, I am going to circle a group of a hundred, draw an arrow from that circle to the tens column, and then draw ten tens to show the value one hundred.**



Remember that when we unbundled a ten we had 10 ones that we moved to the ones place? [Pause.] **Here, we decomposed a hundred into 10 tens and moved them to the tens place.**

Now, you unbundle 1 hundred by circling, drawing an arrow, and moving the tens to the tens column on your place value chart. [Pause.] **Explain what you just did.** [Pause.]

How many names does our new model have? [Pause.] **Write all of the names that you can think of under your model.** [Pause.] **Let's look at our tens column. Count all of these tens with me. 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120. We now have 120 in our tens column. Remember, we have not added anything or taken anything away. We have just**

Student writes 224 in multiple ways.

Student answers.

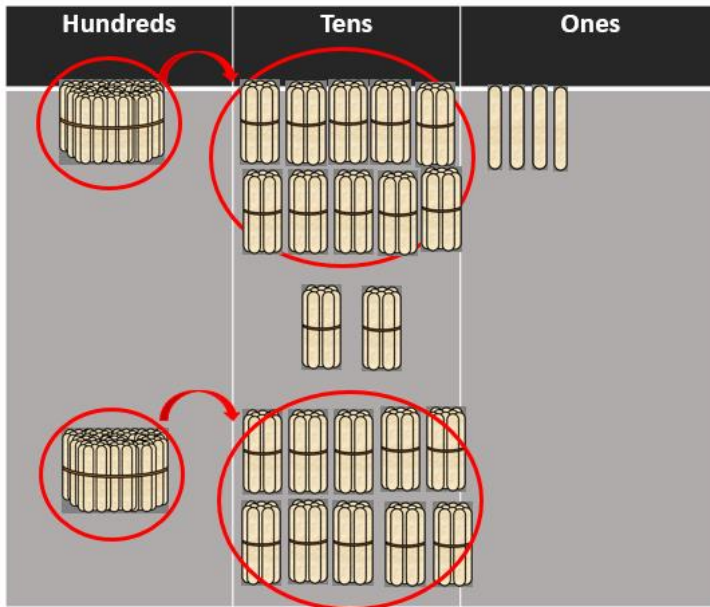
Student shakes head.

Student draws the model.
Student explains the model.

Student writes 224 in multiple ways.

changed the form of our numbers. Our value of 224 has stayed the same. [Pause.] Our new ways to write 224 include 1 hundred + 12 tens + 4 ones, and $100 + 120 + 4$.

Could we unbundle or decompose the remaining hundred? What do you think? [Pause.] I agree! We can decompose the second hundred as well. We will work on that at the same time. Go ahead and get started. [Model the original number with craft sticks and drawings on the place value chart. Unbundle a hundred into the 10 tens and move them to the tens place. Do the same with the drawing on the place value chart. Explain as you model.] I am unbundling a hundred and moving ten tens into the tens column. On my representation, I am going to circle a group of a hundred, draw an arrow from that circle to the tens column, and then draw ten tens to show the value one hundred.



So, how are we going to write all of the names of the number we see now on our place value mat? [Pause.] You write yours on your paper while I write mine. [Pause.] [Write and talk.] Two hundred twenty-four; 224; 2 hundreds + 2 tens + four ones; $200 + 20 + 4$; 1 hundred + 12 tens + 4 ones; $100 + 120 + 4$; 0 hundreds + 22 tens + 4 ones; $0 + 220 + 4$; $220 + 4$; and 224.

Guided Practice (10 minutes)

Teacher Note: The next problem is exactly like the previous 2, except the students will work along with you. Because the tasks are so similar, many of the directions will be summarized.

Student answers yes.

Student draws on the place value chart.

Student writes 224 in multiple ways.

<p>Please create a place value chart with hundreds, tens, and ones. [Pause.]</p> <p>Build the number 411 with as many hundred and ten bundles as you can. [Pause.] [Teacher models with craft sticks that are bundled beforehand and on the place value chart. Explain as you work.]</p> <p>Now write all the ways for 411 to match our model. [Pause.] [Write all ways and share out.]</p> <p>How can we represent 411 in a different way? Show me on your place value chart. [Pause.] [Unbundle 1 hundred, circling the hundred, drawing the arrow to the tens, and then recording the 10 tens in the correct column.]</p> <p>Now write all the ways for 411 to match our new model. [Pause.] [Write all the ways and share out.]</p> <p>How can we represent 411 in a different way? Show me on your place value chart. [Pause.] [Unbundle 1 hundred, circling the hundred, drawing the arrow to the tens, and then recording the 10 tens in the correct column.]</p> <p>Now write all the ways for 411 to match our new model. [Pause.] [Write all the ways and share out.]</p> <p>Could we decompose anymore? [Pause.] Yes we could, but we are going to stop here because the models become too big to draw. Plus, I think you understand what we are doing now!</p>	<p>Student draws a place value chart.</p> <p>Student draws a representation of 411.</p> <p>Student writes 411 in multiple ways.</p> <p>Student draws a representation of 411.</p> <p>Student writes 411 in multiple ways.</p> <p>Student draws a representation of 411.</p> <p>Student writes 411 in multiple ways.</p> <p>Student answers yes.</p>
<p><u>Independent Practice</u> (2 minutes)</p> <p>Today we have practiced representing three digit numbers in more than 1 way. 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!</p>	<p>Student completes independent practice.</p>
<p><u>Closing</u> (1 min)</p> <p>I enjoyed doing some mathematics 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!</p>	

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