

Math: Grade 2, Lesson 1, Representing a Number Less than 20

Lesson Objective: Students use objects to model a number less than 20 as a ten and some ones.

Practice Focus: Represent a number less than 20 as a ten and some ones.

TN Standard: 2.NBT.A.1

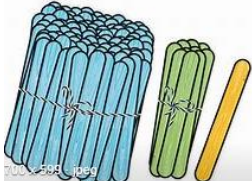
Teacher Materials:

- Concrete manipulatives (i.e. straws, coffee stirrers, or craft sticks)
- Place value mat featuring tens and ones.
- White board or piece of paper to model and record quantities

Student Materials:

- paper, pencil, surface to write on
- The student packet for Math, Grade 2, Lesson 1 which can be found at www.tn.gov/education

*This is the first lesson in an arc that builds towards understanding of NBT.A.1. It is tempting to use place value blocks because they are easier to draw. It is important for students to work with unitizable manipulatives so that they can physically bundle groups of ten ones to make a ten and then bundle groups of ten tens to make 100 before moving to unitized manipulatives such as base ten blocks. This work is imperative to help students understand how “bundling” (regrouping) and “unbundling” (borrowing) work.

Teacher Do	Student Do
<p><u>Opening</u> (1 minute)</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 first 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 building numbers. Before we get started, to participate fully in our lesson today you will need:</p> <ul style="list-style-type: none"> • paper, pencil, surface to write on • The student packet for Math, Grade 2, Lesson 1 which can be found at www.tn.gov/education <p>Today, we are going use craft sticks to help us think about the different ways we can build numbers. We will be drawing models of ones, tens, and hundreds.</p> 	

<p>Your models do not need to be perfect. This is what mine look like. [Teacher sketches your versions of ones, tens, and hundreds in a place value mat so that the kids have a model to visualize.] Can you draw yours? [Pause.] Remember, they do not have to be perfect! Just do your best work!</p>	<p>Students practice sketching a one and a ten bundle.</p>
<p>Intro (10 minutes)</p> <p>Let's get started! You have 13 pieces of gum. I am going to model your gum with these craft sticks. [On a place value mat showing ones and tens, place 13 craft sticks in the Ones column and count by ones. You may want to place the ones in groups of five to make counting easier.] 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13.</p> <p>I am going to record our number in as many ways as I can to match our model. [Teacher writes "13", "thirteen" and "13 ones"]</p> <p>Could I have counted in a quicker way? [Pause.] Yes! I could have counted by twos or fives. Count with me by twos! 2, 4, 6, 8, 10, 12, 13. [Pause.] Now count with my by fives. 5, 10, 11, 12, 13.</p> <p>Hmmm.... it took some time to count all 13. Let's group ten of the sticks together to make the counting quicker. [Teacher group ten sticks together.] Now that we have one group of ten, we are going to slide it over to the tens column. [Teacher moves the group of ten into the tens column.] How many sticks remain? [Pause.]</p> <p>Right! We will have 3 sticks left after we bundle the ten sticks together. We will have 3 sticks left in the ones place. [Emphasize the difference between 1 one and 1 ten by holding them up and comparing them.]</p> <p>Let's draw a model that matches our 1 ten and 3 pieces of gum. [Draw the place value frame. Draw 13 ones in the ones column.]</p> <p>How did we organize these ones? [Pause.] We bundled them together to make a ten and moved them to the tens place. [Pause.]</p> <p>We will circle the 10 ones and then draw an arrow over to the tens place and draw 1 bundle of 10. [Draw as you talk – circle 10 ones and draw an arrow to the tens place, then draw 1 bundle of 10.] This is what we did earlier. Notice that our picture matches what we are talking about. [Draw another</p>	<p>Student answers yes.</p> <p>Student counts with teacher.</p> <p>Students count with teacher.</p> <p>Student answers 3.</p> <p>Student answers.</p>

<p>place value mat, showing a “cleaned up version” of the 1 ten and 3 ones. The students can now see the difference between the two models of 13.] We did not add any sticks or take any away. The number or value of the sticks remains the same.</p> <p>Let’s write the number in ways that match our model. For the 13 ones model, write “thirteen”, “thirteen ones”, and “13”. [Pause.]</p> <p>For the 13 model with the tens, write “13”, “thirteen”, “1 ten + 3 ones”, and “10 + 3”. [Pause.]</p>	<p>Student writes 13 in different ways.</p> <p>Student writes 13 in different ways.</p>
<p>Guided Practice: (16 minutes)</p> <p>Draw a place value mat with me. [Draw a place value mat with tens and ones.] [Pause.] This is what my place value mat looks like. Does yours look like mine? [Pause.]</p> <p>You went to the lake and caught 15 fish. [Show 15 sticks in the ones column.] Let’s draw that model together. [Draw 15 sticks in the ones place. Consider modeling the ones in groups of five (similar to tally marks) to make counting easier.]</p> <p>Count the sticks. Use a counting pattern other than counting by ones. [Pause.]</p> <p>Now count with me by twos! 2, 4, 6, 8, 10, 12, 14, 15. Good job! Now count with my by fives. 5, 10, 15.</p> <p>Let’s write the number 15 in all of the ways that match our model. You go first at home! [Pause.] [Write 15, fifteen, 15 ones.]</p> <p>How can we model the number 15 another way? [Pause.] We can make a bundle of tens! You remembered! We can bundle 10 ones together [bundle ten ones] and then slide the bundle over to the tens place. [move the bundle into the tens place.] How many ones are left? [Pause.] Great job! There are five ones left in the ones place.</p> <p>Let’s draw this second model together. Draw with me. [Draw 13 ones in the ones column.] We started with 13 ones in the ones column. [Circle a group of ten.] We then bundled a group of ten. [Draw an arrow from the group of ten to the tens column.] We then moved the group of ten ones into the tens place. [Draw a group of ten.] Now we have one ten.</p>	<p>Student draw a place value mat.</p> <p>Student answers.</p> <p>Student draws 15 sticks in the ones place.</p> <p>Student counts.</p> <p>Student counts with teacher.</p> <p>Student writes 15 in multiple ways.</p> <p>Student answers by bundling.</p> <p>Student answers 5.</p> <p>Student draws along with teacher.</p>

<p>Can you explain your model? [Pause.] I had 15 ones in the ones column, so I bundled 10 of them together to make 1 ten. I moved that 1 ten into the tens column.</p> <p>Let's write all of the different ways we can think about this value/amount. [Pause.] We can write this value as 15, one 1- and 5 ones, and 15 ones.</p> <p>Now spin around 15 times while patting your head and giggling! [Pause.]</p> <p>Now on to our next example. You have read 17 books this year! Let's draw our place value chart. You draw it with me. [Pause.] [Draw place value chart with tens and ones.]</p> <p>Model 17 using only ones. [Pause.] [Draw 17 sticks in the ones place. Consider modeling the ones in groups of five (similar to tally marks) to make counting easier.] Did you draw 17 ones? [Pause.]</p> <p>Write the number that matches our model in all the way you can. [Pause.] Here are two ways: sseventeen, 17 ones.</p> <p>How can we model the number another way? [Pause.] We could make 1 group of ten and move it to the tens place! You remembered! We can bundle 10 ones together and then slide the bundle over to the tens place.</p> <p>Draw this second model on your own and think about your model. [Pause.] [Draw place value chart with 1 ten and 7 ones.] Here is my model of seventeen with 1 ten and 7 ones. [Show place value chart.]</p> <p>Please write all of the different ways we can represent this value/amount. [Pause.] We can write it these ways: 17, 1 ten and 7 ones, and seventeen.</p> <p>Now clap your hands 17 times while sticking your tongue out! [Pause.]</p> <p><i>Teacher Note: Consider having the kids model a number less than ten, making sure they understand that there are no tens that can be bundled. Teacher models with concrete and then has students draw the model that matches the concrete representations.</i></p>	<p>Student explains.</p> <p>Student writes 15 in different ways.</p> <p>Student spins, pats head, and giggles!</p> <p>Student draws place value chart.</p> <p>Students draw 17 ones. Student answers.</p> <p>Student writes 17 in different ways.</p> <p>Student answers.</p> <p>Student draws place value chart.</p> <p>Student writes 17 in different ways.</p> <p>Claps hands and stick out tongue.</p>
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PBS Lesson Series

<u>Independent Practice</u> (2 minutes) Today we have practiced representing numbers less than 20 as a ten and some ones. 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!	Student completes independent practice pages.
<u>Closing</u> (1 min) Boys and Girls, 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!	

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