Topic E:
Model Numbers Within 1000 with Place Value Disks

2.NBT.A

<table>
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<th>Coherence</th>
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<td>-Links from: G1–M6</td>
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<td>-Links to: G2–M4</td>
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Understand place value.

Place Value, Comparison, Addition and Subtraction of Numbers to 100

Addition and Subtraction of Numbers to 1000

Comparison, Addition and Subtraction with Length and Money

In Topic E, students transition to the more abstract “number disks” that will be used through grade 5 when modeling very large and very small numbers. The foundation has been carefully laid for this moment since kindergarten when students first learned how much a number less than 10 needs to “make ten.” The students repeat the counting lessons of the bundles and money, but with place value disks (2.NBT.2). The three representations: bundles, money, and disks, each play an important role in the students’ deep internalization of the meaning of each unit on the place value chart (2.NBT.1). Like bills, disks are “traded,” “renamed” or “changed for” a unit of greater value (2.NBT.2). Finally, students evaluate numbers in unit form with more than 9 ones or tens, for example 3 hundreds 4 tens 15 ones and 2 hundreds 15 tens 5 ones. Topic E also culminates with a problem solving exploration in which students use counting strategies to solve problems involving pencils which happen to come in boxes of 10 (2.NBT.2).
CONCEPT CHART | A Teaching Sequence Towards Mastery of Modeling Numbers Within 1000 with Place Value Disks

Concept 1: Count the Total Value of Ones, Tens, and Hundreds with Place Value Disks (Lesson 11)

Concept 2: Change 10 Ones for 1 Ten, 10 Tens for 1 Hundred, and 10 Hundreds for 1 Thousand (Lesson 12)

Concept 3: Read and Write Numbers Within 1000 After Modeling with Place Value Disks (Lesson 13)

Concept 4: Model Numbers with More Than 9 Ones or 9 Tens; Write in Expanded, Unit, Numeral, and Word Forms (Lesson 14)

Concept 5: Explore a Situation with More Than 9 Groups of Ten (Lesson 15)

Mathematical Practices Brought to Life

Lesson 12 includes an example of MP7, “Look for and make use of structure,” as students consider numbers’ relationships to tens and hundreds and the best units to use for counting. In Lesson 13, students articulate the units they are working with, an example of MP.6; “Attend to Precision.” In Lesson 15, an exploration, the teacher steps into the background and students work to solve a four-part problem independently, an example of MP1, “Make sense of problems and persevere in solving them.”
Lesson 11: Count the Total Value of Ones, Tens, and Hundreds with Place Value Disks

Suggested Lesson Structure

- **Fluency Practice**: (12 minutes)
- **Application Problem**: (9 minutes)
- **Concept Development**: (25 minutes)
- **Student Debrief**: (14 minutes)
- **Total Time**: (60 minutes)

**Fluency Practice (12 minutes)**

- Rekenrek Counting: Numbers in Unit Form 2.NBT.1 (4 minutes)
- Sprint 2.OA.2 (8 minutes)

**Rekenrek Counting: Numbers in Unit Form Between 11 and 100 (4 minutes)**

Materials: (T) Rekenrek

T: (Show 11) What number is showing?
S: 11!
T: The unit form way?
S: 1 ten 1 one.
T: Good. Keep counting the unit form way. (Move beads to count by ones to 15.)
S: 1 ten 2 ones, 1 ten 3 ones, 1 ten 4 ones, 1 ten 5 ones.
T: This time say each number 2 ways. First the unit form way, then just as ones. Let’s do one together so you know what I mean. (Switch to counting by tens and show 25.)
T: Me first. 2 tens 5 ones is 25 ones. Your turn.
S: 2 tens 5 ones is 25 ones.
T: Good. Say the numbers that I show both ways. (Continue to count by tens to 55.)
S: 3 tens 5 ones is 35 ones, 4 tens 5 ones is 45 ones, 5 tens 5 ones is 55 ones.
T: This time say the ones first, then the unit form. (Switch to counting by ones to 61.)
S: 56 ones is 5 tens 6 ones, 57 ones is 5 tens 7 ones, 58 ones is 5 tens 8 ones, 59 ones is 5 tens 9 ones, 60 ones is 6 tens, 61 ones is 6 tens, 1 one.

Continue, adjusting to practice with the switches, numbers, or number form that students find most difficult.
Lesson 11: Count the Total Value of Ones, Tens, and Hundreds with Place Value Disks

Date: 11/19/12

Sprint (8 minutes)

Materials: (S) Addition and Subtraction to 10 Sprint (The directions for administration of Sprints are in the appendix of the G2-M3-Fluency Progressions.)

Application Problem (9 minutes)

Samantha is helping the teacher organize the pencils in her classroom for the teacher. She finds 41 yellow pencils and 29 blue pencils. She threw away 12 that were too short. How many pencils are left in all?

T: When you read this story, what do you see?
S: “Pencils.” → “Yellow and blue pencils.” → “12 pencils that are too short?”
T: Can you draw something to represent the pencils?
S: “We can draw the pencils.” → “We can draw bundles.” → “We can draw boxes of 10 pencils.”
T: I’m only giving you 2 minutes to draw, so would it be wiser to draw bundles, boxes or all of the pencils?
S: Bundles or boxes.
T: Go ahead and do that.
S: (Students draw.)
T: Go ahead and solve the problem.
T: (After students have solved and written their statements.) The answer is?
S: 68 pencils are left.
T: Thank you for answering in a complete statement.
T: What does your drawing show you? Talk with your partner.
S: “We have two parts, the yellow and the blue pencils and one part, the ones that are too short, are being thrown away.” → “I could take the 12 away from the blue pencils.” → “I could add the yellow and blue pencils and take away the short ones from the total.” → “I could take the short ones away from the yellow pencils and then add the blue.” → “Yeah that’s true because even though it was maybe a mix of blue and yellow ones that were too short, it still will tell the right total in the end.”
T: Let’s look at two different work samples that solved the problem in different ways.
Concept Development (25 minutes)

Concrete (15 minutes)

Materials: (T) Dienes blocks (9 hundreds, 9 tens, 9 ones), 1 place value chart without headings, number disks (9 hundreds, 9 tens, 9 ones) (S) Dienes blocks (2 hundreds, 9 tens, 9 ones) 1 place value chart without headings, number disks (6 hundreds, 9 tens, 9 ones)

Students work in partners.

T: With your blocks, show me this number. (Silently write 13 on the board.)
S: (Students show.)
T: Whisper the number first in in unit form, then in standard form.
S: 1 ten 3 ones, thirteen.
T: Show me the same number with your disks and whisper the unit form and standard form as you work.
S: (Students show and whisper.)
T: With your blocks, show the number to me. (Silently write 103 on the board.)
S: (Students show.)
T: Whisper the number first in unit form, then in standard form.
S: 1 hundred 3 ones, one hundred three.
T: Show me the same number with your disks and whisper as you work.
S: (Students show.)

Continue alternating between blocks and disks possibly with the following sequence. (For now, please resist using the words “more” or “less.”) 129, 130, 230, 203, 199, 200.

T: Talk with your partner about the difference between modeling your numbers with blocks and modeling your numbers with place value disks.
S: “The blocks were yellow and the disks were different colors.” → “The blocks were bigger and smaller and the disks were all the same size.” → “The disks have the name on them. The blocks don’t. You just count.”
T: Up to this point, we have been using bundles (hold up 1 hundred) and bills (hold up 1 hundred-dollar bill). Talk to your partner and compare the blocks and disks to the bundles and bills. How are they the same? How are they different?
S: “The bills have the name on them like the disks.” → “With the bundles you can count the number of straws like the blocks.” → “The bundles and blocks both are bigger when you have a bigger number.” → “The bills and disks stay the same size.” → “They all represent

NOTES ON SCAFFOLDING ELLS:

This is a time when it may be appropriate to group students with similar home-language for deeper discussion. This technique may work well here since the discussion is open-ended and invites students to reflect on their own learning through the context of a hypothetical situation. Importantly, it does not require translation. Key vocabulary is familiar and supported with visuals, and also secondary in purpose to the thinking that students are asked to produce.
hundreds, tens and ones.” → “The bills and the straws we see at home but these blocks and disks are just in math class. I’ve never seen them somewhere else.

T: Okay, as I am circulating and listening, I hear some very thoughtful insights.

T: Here is a question to discuss with your partner. Imagine you are a teacher. How would you use these tools to teach different things to your class? (Write or post each word with a small pictorial for each to support language use.)

- Bundles
- Blocks
- Bills
- Place Value Disks

Activity Worksheet (10 minutes)

Materials: (S) Worksheet, base-ten materials from the concrete portion of the lesson

Directions A-E: Model the numbers on your place value chart using the fewest number of blocks or disks possible.

1. Partner A use base-ten blocks.
2. Partner B use place value disks.
3. Whisper each number in unit and standard form.

Directions F-O: Model the numbers on your place value chart using the fewest number of disks possible.

1. Partners A and B alternate using place value disks.
2. Whisper each number in unit and standard form.

NOTES ON SCAFFOLDING ELLS AND STUDENTS BELOW GRADE LEVEL:

The activity worksheet lends itself well to pairing up students above grade level with ELLs or students below grade level. In having pairs of students with varying skill levels and/or different levels of English language competence, it will allow students to teach and assist one another when building the models. However, it is important to monitor students to ensure everyone is engaged and participating.
Student Debrief (14 minutes)

T: Come to the carpet with your partner and your worksheet. Whisper skip-count down by tens from 300 as you transition to the carpet.

T: Let’s begin with questions F and G. Discuss with your partner how the numbers changed using this sentence frame (posted or written).

I changed _______ to _______.

I changed _______ to _______.

The value of my number changed from _______ to _______.

S: (You might hear students catch on quickly.) “I changed 2 tens to 2 hundreds. I changed 5 ones to 5 tens. The value of my number changed from 25 to 250.”

T: (If not, ask a student to model.) Let’s have Alejandro use his words for us.

S: “I changed 2 tens to 2 hundreds. I changed 5 ones to 5 tens. That changed the value of my number from 25 to 250.”

T: Just as Alejandro demonstrated, tell your partner how the numbers changed from G to H.

S: “I changed 2 hundreds to 5 hundreds. I changed 5 tens to 2 tens. The value of my number changed from 250 to 520.”

T: You improved! Keep going through the worksheet’s numbers using words to tell about the changes. (Continue for about 4 minutes as you circulate and support.)

T: Today we used a new tool, place value disks. Did you enjoy using them?

S: Yes!!

T: We will keep our bundles of straws and our base-ten blocks here in the math materials center. They will always help us remember the value of our units. I will hold up a unit, you show me the correct place value disk.

T: (Silently hold up a “flat”. Students hold up a hundred-disk. Hold up a bundle of 10 straws. Students hold up a ten-disk. Hold up a one-dollar bill, etc.)

T: Quietly go back to your seats to complete your Exit Ticket.
Exit Ticket

After the Student Debrief, instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students’ understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.
Lesson 11: Count the Total Value of Ones, Tens, and Hundreds with Place Value Disks

Date: 11/19/12

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Lesson 11: Count the Total Value of Ones, Tens, and Hundreds with Place Value Disks

Date: 11/19/12

### Add or subtract

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<td>22</td>
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<td>44 9 - 4 =</td>
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Name _______________________________ Date _______________

1) Directions: Model the numbers on your place value chart using the fewest number of blocks or disks possible.

Partner A use base ten blocks.
Partner B use place value disks.
Compare the way your numbers look.
Whisper the numbers in standard form and unit form.

2) 12
3) 124
4) 104
5) 299
6) 200

2) Take turns using the number disks to model the following numbers using the fewest disks possible. Whisper the numbers in standard form and unit form.

a) 25  f) 36
b) 250  l) 360
c) 520  m) 630
d) 502  n) 603
e) 205  o) 306
1. Tell the value of the following numbers.

A. ______________________

B. ______________________

2. Fill in the sentences below to tell about the change from 36 to 360.

I changed ______________________ to ______________________.

I changed ______________________ to ______________________.
Homework: Model the numbers using the fewest disks possible.

(Teacher: Students will need a set of paper place value disks to take home.)

1) Use your place value disks to show your parent the following numbers.

   Whisper the numbers in standard form and unit form (1 hundred 3 tens 4 ones).
   a) 15
   b) 152
   c) 102
   d) 290
   e) 300

2) Use number disks to model the following numbers using the fewest disks possible. Whisper the numbers in standard form and unit form.

   a) 42    f) 53
   b) 420   g) 530
   c) 320   h) 520
   d) 402   i) 503
   e) 442   j) 55
Lesson 12: Change 10 Ones for 1 Ten, 10 Tens for 1 Hundred, and 10 Hundreds for 1 Thousand

Suggested Lesson Structure

- Fluency Practice (10 minutes)
- Application Problems (10 minutes)
- Concept Development (30 minutes)
- Student Debrief (10 minutes)

Total Time (60 minutes)

Fluency Practice (10 minutes)

- 10 More/10 Less 2.NBT.2 (2 minutes)
- Sprint 2.OA.2 (8 minutes)

10 More/10 Less (2 minutes)

T: I’ll say a number. You say the number that is 10 more. Wait for my signal. Ready?
T: 50. (Signal after each number.)
S: 60!
T: 90.
S: 100!
T: 130.
S: 140!

Continue with 10 more, then switch to 10 less.

Sprint (8 minutes)

Materials: (S) Sums to 10 with Ten Numbers Sprint (The directions for administration of Sprints are in the appendix of the G2-M3-Fluency Progressions.)
**Lesson 12**

**Change 10 Ones for 1 Ten, 10 Tens for 1 Hundred, and 10 Hundreds for 1 Thousand**

**Date:** 11/19/12

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**Application Problem (10 minutes)**

How many packages of 10 cookies can Collette make using 124 cookies? How many cookies does she need to complete another package of 10?

T: Let’s read this problem together.

T: Visualize. Close your eyes and see the number 124 in the different ways we’ve learned to represent numbers.

T: Discuss how you could solve this problem with your partner. Then draw a model and solve.

T: (After 2 or 3 minutes.) Who would like to share their thinking?

S: “I drew place value disks to show 124. Then I changed the 100 disk for 10 tens and I saw that 10 tens and 2 tens make 12 tens. Then I drew 6 more ones disks to make another package of 10.” → “I knew that 100 is 10 tens and 20 is 2 tens so I drew 12 tens. And she needs 6 more cookies to make another ten.” → ”I remember that 120 is 12 tens, so that’s the answer. And 6 ones plus 4 ones equals another ten.”

T: Excellent reasoning! So how many packages of 10 cookies can Collette make?

S: She can make 12 packages of 10 cookies. (Write the statement on the board.)

T: As I walked around I noticed that most of you drew place value disks. Is it easier to draw place value disks than bundles?

S: Yes.

T: Why?

S: It’s faster!

T: Yes. We want to be efficient.

T: Please add the statement to your paper if you haven’t already.
Concept Development (30 minutes)

Concrete (20 minutes)

Materials: (S) Place Value Disks (10 ones, 10 tens, 10 hundreds) and place value chart per pair of students

Part A: Show the Equivalence of 10 Ones and 1 Ten, 10 Tens and 1 Hundred, 10 Hundreds and 1 Thousand

Students work in pairs.

T: Show me 10 ones in two vertical columns of 5, the ten-frame way, on your place value chart.
S: (Students work.)
T: What is the value of your 10 ones?
S: 10!
T: 10 potatoes?
S: 10 ones.
T: Can you change 10 ones to make a larger unit?
S: Yes.
T: What unit can you make?
S: A ten.
T: Change 10 ones for 1 ten. Did you put your 1 ten to the left or to the right?
S: To the left!
T: Yes, on the place value chart our numbers get bigger to the left!
T: Skip-count by tens on your place value chart until you have placed 10 tens.
T: Can you change to make a larger unit? (Repeat the cycle with 10 tens and 10 hundreds.)
T: Just like with our bundles, bills and blocks, disks allow us to see how numbers work.

Part B: Count by Ones from 186 to 300 Using Place Value Disks

T: Show (silently write 186 on the board) with your place value disks. Make sure you show your units the “ten-frame” way.
S: (Students show.)
T: Let’s count up to 300 by ones. How many ones do I need to make ten?
S: 4 ones.
T: It is easy to see because of the ten-frame format in which you have laid out your disks. Use that structure as you count to 300 please.
T: Let me hear you whisper count as you count by ones.
S: (Whispering.) 187, 188, 189, 190.
T: Pause. Can you change for a larger unit?
S: Yes. We can change 10 ones for 1 ten.
T: Do that and then keep counting with your partner up to 300. If you finish before your classmates, count down from 300 to 275.

(While students are counting, circulate and say, “Pause a moment. What number are you on? Did you just make a unit? How many more do you need to count to make the next larger unit?”)

T: (Continue once most students have finished.) What were some numbers where you had to change 10 smaller units for 1 of the next unit to the left?

S: 190, 200, 250, 300, etc.

T: Use your words to tell your partner what happened when you got to both 200 and 300.

S: “We made 1 ten.” → “We made 1 hundred.” → “We changed to make a ten from the ten ones. Then, that ten meant we could change 10 tens for 1 hundred.”

T: Mark is expressing the change from 299 to 300 very well. Mark, will you share?

S: We changed to make a ten from the ten ones. Then, that ten meant we could change 10 tens for 1 hundred.

T: Restate Mark’s explanation to your partner. You certainly may use your own words to express the same idea.

T: (Students talk.) Think about the number 257. Do you remember what it looks like with your disks?

S: Yes!

T: How many more ones did 257 need to make a ten?

S: 3 ones.

T: The place value disks help us to visualize that because we put them in rows. We can easily see that missing 3 ones.

T: Next, you are going to count from 582 to 700 and as you go, think about how many more you need to make the next unit.
Activity Worksheet (10 minutes)

Materials: (S) Worksheet, place value disks and chart as in the concrete portion of the lesson

Directions: Count by ones from 582 to 700 using your place value disks.

1. Model 582 with your place value disks. Count up by ones to 700.
2. Pause at each number listed on your worksheet. At that number, did you make a larger unit?
3. If the answer is yes, tell what unit or units you made.
4. If the answer is no, tell how much more you need to make the next largest unit.
5. If you finish before time is up, model counting down to each number on the worksheet beginning with 700.

Student Debrief (10 minutes)

T: Think about the number 582. Do you remember what it looks like with your disks?
S: Yes!
T: How many more ones did 582 need to make a ten?
S: 8 ones.
T: The place value disks help us to visualize. We can easily see the 8 missing ones. Go over the answers on your worksheet with a partner.
S: (Share answers.)
T: At which numbers did you not make a change?
S: 618 and 652.
T: And at which numbers did you make a change?
S: 590, 600, 640 and 700.
T: How many tens does 590 need to change 10 tens for 1 hundred?
S: 1 ten.
T: How many hundreds does 600 need to change 10 hundreds for 1 thousand?
S: 4 hundreds.
T: How many tens does 640 need to change 10 tens for 1 hundred?
T: 6 tens.
T: How many hundreds does 700 need to change 10 hundreds for 1 thousand?

NOTES ON SCAFFOLDING ELLS:
The names of such large numbers may be difficult vocabulary for some ELL students to produce without assistance. Some students may benefit from writing each number they count on a personal board. Writing and looking at the number supports oral language.
S: 3 hundreds.

T: With your partner, count without disks from each of the numbers on the worksheet to 900 using ones, tens and hundreds. Remember how we used to count bundles by counting ones to complete a ten, then counting tens to complete a hundred, then counting up by hundreds? Visualize the disks to help you.

S: (e.g., 590, 600, 700, 800, 900, etc.)

T: Today we focused on changing 10 ones for 1 ten, 10 tens for 1 hundred and 10 hundreds for 1 thousand.

Exit Ticket

After the Student Debrief, instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students’ understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.
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</table>
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4 14 + 1 = 26 15 + 1 =
5 6 + 1 = 27 5 + 3 =
6 16 + 1 = 28 15 + 3 =
7 3 + 2 = 29 6 + 2 =
8 13 + 2 = 30 16 + 2 =
9 5 + 2 = 31 3 + 6 =
10 15 + 2 = 32 13 + 6 =
11 7 + 2 = 33 7 + 2 =
12 17 + 2 = 34 17 + 2 =
13 5 + 3 = 35 1 + 8 =
14 15 + 3 = 36 11 + 8 =
15 7 + 3 = 37 3 + 5 =
16 17 + 3 = 38 13 + 5 =
17 6 + 3 = 39 4 + 2 =
18 16 + 3 = 40 14 + 2 =
19 5 + 4 = 41 5 + 4 =
20 15 + 4 = 42 15 + 4 =
21 1 + 9 = 43 1 + 6 =
22 11 + 9 = 44 11 + 6 =
Count from 582 to 700 using place value disks. Change for a larger unit when necessary.

When you counted from 582 to 700:

<table>
<thead>
<tr>
<th>Did you make a larger unit at...</th>
<th>Yes, I changed to make:</th>
<th>No, I need ______</th>
</tr>
</thead>
<tbody>
<tr>
<td>590 ?</td>
<td>1 ten 1 hundred</td>
<td>_____ ones. _____ tens.</td>
</tr>
<tr>
<td>600 ?</td>
<td>1 ten 1 hundred</td>
<td>_____ ones. _____ tens.</td>
</tr>
<tr>
<td>618 ?</td>
<td>1 ten 1 hundred</td>
<td>_____ ones. _____ tens.</td>
</tr>
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<td>640 ?</td>
<td>1 ten 1 hundred</td>
<td>_____ ones. _____ tens.</td>
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<td>652 ?</td>
<td>1 ten 1 hundred</td>
<td>_____ ones. _____ tens.</td>
</tr>
<tr>
<td>700 ?</td>
<td>1 ten 1 hundred</td>
<td>_____ ones. _____ tens.</td>
</tr>
</tbody>
</table>
Lesson 12 Exit Ticket

Name __________________________________________________________________________ Date __________

1. Match to show the equivalent value.

   10 ones                      1 hundred
   10 tens                      1 thousand
   10 hundreds                  1 ten

2. Draw a model on the place value chart to show 348.

   a) How many more ones to make a ten? _____ ones
   b) How many more tens to make a hundred? _____ tens
   c) How many more hundreds to make a thousand? _____ hundreds
Lesson 12: Change 10 Ones for 1 Ten, 10 Tens for 1 Hundred, and 10 Hundreds for 1 Thousand

Date: 11/19/12

Count by ones from 368 to 500. Change for a larger unit when necessary.

When you counted from 368 to 500:

<table>
<thead>
<tr>
<th>Did you make a larger unit at…</th>
<th>Yes, I changed to make:</th>
<th>No, I need _______</th>
</tr>
</thead>
<tbody>
<tr>
<td>377 ?</td>
<td>1 ten 1 hundred</td>
<td>___ ones. ___ tens.</td>
</tr>
<tr>
<td>392 ?</td>
<td>1 ten 1 hundred</td>
<td>___ ones. ___ tens.</td>
</tr>
<tr>
<td>400 ?</td>
<td>1 ten 1 hundred</td>
<td>___ ones. ___ tens.</td>
</tr>
<tr>
<td>418 ?</td>
<td>1 ten 1 hundred</td>
<td>___ ones. ___ tens.</td>
</tr>
<tr>
<td>463 ?</td>
<td>1 ten 1 hundred</td>
<td>___ ones. ___ tens.</td>
</tr>
<tr>
<td>470 ?</td>
<td>1 ten 1 hundred</td>
<td>___ ones. ___ tens.</td>
</tr>
</tbody>
</table>
Lesson 13: Read and Write Numbers Within 1000 After Modeling with Place Value Disks

Suggested Lesson Structure

- Fluency Practice (10 minutes)
- Application Problem (10 minutes)
- Concept Development (30 minutes)
- Student Debrief (10 minutes)

Total Time (60 minutes)

Fluency Practice (10 minutes)

- Sprint 2.NBT.3 (8 minutes)
- 100 More/100 Less 2.NBT.2 (1 minute)
- How Many Tens/How Many Hundreds 2.NBT.1 (1 minute)

Sprint (8 minutes)

Materials: (S) Place Value Counting to 100 Sprint (The directions for administration of Sprints are in the appendix of G2-M3-Fluency Progressions)

100 More/100 Less (1 minute)

T: I’ll say a number. You say the number that is 100 more. Wait for my signal. Ready?
T: 70. (Signal after each number.)
S: 170!
T: 200.
S: 300!
T: 480.
S: 580!
T: 900.
S: 1000!

Continue with 10 more, then switch to 10 less.
How Many Tens/How Many Hundreds (1 minute)

T: I’ll say a number. You say how many tens are in that number. For example I say, “14 ones.” You say, “1 ten.” Wait for my signal. Ready?
T: 20 ones. (Signal after each number.)
S: 2 tens!
T: 28 ones.
S: 2 tens!
T: 64 ones.
S: 6 tens!
T: 99 ones.
S: 9 tens!

Continue in this manner, then switch to asking how many hundreds.

T: 15 tens.
S: 1 hundred!
T: 29 tens.
S: 2 hundreds!
T: 78 tens.
S: 7 hundreds!

Application Problem (10 minutes)

Sarah’s mom bought 4 boxes of crackers. Each box had 3 smaller packs of 10 inside. How many crackers were in the 4 boxes?

T: Read this problem with me.
T: We always have to pay special attention to the information given.
T: How many boxes are there?
S: 3.
T: What is inside each box?
S: 3 packs of 10 crackers.
T: What unit are we solving for, boxes or crackers? Reread the question and then tell your partner.
S: Crackers.
T: Correct. Now discuss with your partner what you could draw that would help you answer the question.
Lesson 13:
Read and Write Numbers Within 1000 After Modeling With Place Value Disks

Date: 11/19/12

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S: “I drew 4 boxes and wrote 10, 10, 10 in each one. Then I skip-counted by tens and got 120.” → “I drew 4 big circles and put 3 ten-disks inside each. Then I used doubles, 3 tens + 3 tens is 6 tens, and 6 tens + 6 tens is 12 tens or 120.” → “I drew the same picture as Yesenia, but I skip-counted 3, 6, 9, 12. And since they’re tens, I said 30, 60, 90, 120.”

T: Great strategies for solving! So what is the answer to the question?

S: There are 120 crackers in the 4 boxes.

Concept Development (30 minutes)

Pictorial: Drawing Place Value Disks to Represent Numbers (10 minutes)

Materials: (T) Plenty of white board space  (S) personal white boards and markers

T: I’m going to draw some pictures of numbers. As I draw, count out loud for me.

T: (On a place value chart silently draw pictures of the disks to represent 322.)

S: 1 hundred, 2 hundred, 3 hundred, 3 hundred ten, 3 hundred twenty, 3 hundred twenty-one, 3 hundred twenty-two.

T: What is the value of the number on my place value chart? Write the value on your personal board. Show the value to me at the signal.

S: 322.

T: Excellent. Try another. (Silently draw as students count the value.)

S: One hundred, one hundred one, one hundred two, one hundred three.

T: What’s the total value of this new number? Write it on your personal board. Show the value to me at the signal.

S: 103.

T: Now we’ll try a new process. I’m thinking of a number. Don’t count while I draw. Wait until I have finished drawing before you whisper its value to your partner.

T: (Silently and quickly draw 281 into a place value chart. Be sure to draw the ten-frame way as modeled in the worksheet below.)

T: Write this new number on your personal board.

T: Here is another one. (A possible sequence would be 129, 710, 807, 564.)

T: What is it about the way I am drawing that is making it easy for you to tell the value of my number so quickly? Talk to your partner.
S: “The labels are easy to read.” → “She draws the hands way, one five then the other.” → “The place value chart makes the units easy to see.”

T: I hear lots of interesting ideas. We have some great tools here. What tools are we using?

S: “A place value chart” → “number disks” → “the ten-frame”

T: Now it is your turn to represent some numbers by drawing place value disks.

Activity Worksheet (10 minutes)

Materials: (S) Worksheet

Directions: Draw the numbers indicated using place value disks drawn the ten-frame way.

Notes on Drawing Place Value Disks

- Have the students draw the value of the unit first, then circle it. (They like to draw the circle first and then cram the unit’s value inside.)
- Have the students start drawing at the base-line of the place value chart, filling their column of 5 (if your number is 5 or greater).
- Go back down and start from the bottom up to build towards the other five for 6, 7, 8, and 9.
Pictorial: Estimating Numbers on the Empty Number Line (10 minutes)

T: Let’s represent the same numbers from our worksheet on empty number lines. Imagine we are traveling from 0 to 72.

T: Here is 0’s address for now. And here is 72’s address at the other end of the number line.

T: How many tens am I going to travel?

S: 7 tens.

T: I would like the 7 jumps to be as equal as I can make them. I like drawing little arrows to show the jumps I make. Count for me.

S: 1 ten, 2 tens, 3 tens, 4 tens, 5 tens, 6 tens, 7 tens, 1 one, 2 ones. Small hops for the ones. Bigger hops for the tens.

T: Below, I’m going to draw my disks (as pictured).

T: Now you try. Here is a template. Use a pencil because you might erase a few times. Make your address for 0 and 72, then get to 72 the best you can with 7 tens and 2 ones.

T: (Circulate and support. Move them on to 427. “What units do you have in that number?” “Which is the largest?” “Draw the disks below to show the units within each hop.”

Encourage the students to have fun and think about the best way to show each number on the empty number line. Accept all reasonable work. Do not be overly prescriptive. Watch for students who make different units the same size. “Yes, the disks are the same size but will the hops be the same size on the number line?” This is an estimation exercise and a chance to consider the size of a unit while working with the disks.

Student Debrief (10 minutes)

Materials: (T) Base-ten bundles of straws on the carpet for students to refer to, Worksheets

T: Bring your work to the carpet. Check your partner’s place value charts. Make sure the correct number of units is drawn and that they are easy to read. Make sure they are in the correct place, too.

S: (Students share.)

T: Let’s start by analyzing our place value charts. In each number there is a 7. With your partner, review the values of the sevens.

T: (Students review the values of the 7s.) Read the
numbers in order from A to F when I give the signal.

S: Students read.

T: Discuss with your partner the bundles that would match each of your six numbers. I have the bundles on the carpet here for you to refer to.

T: (After students discuss). Now share your number lines with your partner. Explain your thinking about the size of your hops.

S: “I knew I had to get in 7 hops by the end of the line so I made them smaller here than in this one.” → “It’s interesting because this line was 427 and this line was 72.” → “So on this one, I made 4 really big hops and 2 small ones and then 7 minis.” → “Then 700 I decided to just make one big hop for all the hundreds.”

T: Let’s read through the numbers we showed both on the place value chart and on the empty number line.

S: 72, 427, 713, 171, 187

T: As we already saw, each of our numbers has a 7 in it. Show your partner how you represented the 7 in each number on your number line. Why are they different?

S: “This was 7 hundreds and this was 7 ones so these were little and these were big.” → “Both these numbers had 7 in the tens place but 72 is smaller than 171 so the hops were bigger when I was only going to 72.” → “705 and 713 both have 7 hundreds. On this number line 1 hopped 7 times but on this number line I made one big jump for all seven. I guess that it’s just about the same though.”

T: So I’m hearing you say that the biggest difference was in the way the 7 tens in 171 and 72 looked, the unit in the middle.

T: It’s so interesting because a number could be counting something really small like 70 grains of rice or something really big like 70 planets! We read and write numbers and they describe things. Turn and talk to your partner. What could our number 427 be describing?


Exit Ticket

After the Student Debrief, instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students’ understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.
Write the number.

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<td>A1</td>
<td>5 tens</td>
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<td>23</td>
<td>80 + 4 =</td>
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<td>2</td>
<td>6 tens 2 ones</td>
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<td>24</td>
<td>4 + 80 =</td>
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<td>6 tens 3 ones</td>
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<td>5 tens 8 ones</td>
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<td>60 + 4 =</td>
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<td>8 + 70 =</td>
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<td>8 tens 6 ones</td>
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<td>9 tens</td>
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<td>41</td>
<td>90 + 2 =</td>
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<td>20</td>
<td>8 tens 1 one</td>
<td></td>
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<td>5 + 60 =</td>
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<td>21</td>
<td>8 tens 2 ones</td>
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<td>8 tens 20 ones</td>
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<tr>
<td>22</td>
<td>8 tens 7 ones</td>
<td></td>
<td>44</td>
<td>30 + 7 tens =</td>
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<td>2</td>
<td>24 4 + 60 =</td>
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<td>5 tens 2 ones</td>
<td>3</td>
<td>25 8 tens</td>
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<td>5 tens 3 ones</td>
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<td>26 7 tens 8 ones</td>
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<td>5 tens 8 ones</td>
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<td>4 + 50 =</td>
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<td>30 5 + 70 =</td>
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<td>8</td>
<td>8 tens 4 ones</td>
<td>9</td>
<td>31 10 tens</td>
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<td>34 6 + 70 =</td>
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<td>6 + 80 =</td>
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<td>9 tens 6 ones</td>
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<td>9 tens 7 ones</td>
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<td>16</td>
<td>9 tens 3 ones</td>
<td>17</td>
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<td>17</td>
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<td>41 70 + 3 =</td>
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<tr>
<td>19</td>
<td>5 tens</td>
<td>20</td>
<td>42 7 + 80 =</td>
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<tr>
<td>20</td>
<td>6 tens 1 one</td>
<td>21</td>
<td>43 9 tens 10 ones</td>
</tr>
<tr>
<td>21</td>
<td>6 tens 2 ones</td>
<td>22</td>
<td>44 40 + 6 tens =</td>
</tr>
<tr>
<td>22</td>
<td>6 tens 7 ones</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Name ________________________________ Date ______________

Directions: Draw place value disks to show and read the following numbers.

A) 72

B) 427

C) 713

D) 171

E) 187

F) 705

When you have finished, use your whisper voice to read each number out loud in both unit and word form. How much does each number need to change for a ten? For 1 hundred?
Name ___________________________ Date ______________

1. Draw place value disks to show the numbers.

   a) 560
   b) 506

2. Draw and label the jumps on the number line to move from 0 to 141.
Homework: Draw place value disks to show and read the following numbers.

A)  43

B)  430

C)  270

D)  720

E)  702

F)  936

When you have finished, use your whisper voice to read each number out loud in both unit and word form. How much does each number need to change for a ten? For 1 hundred?
Lesson 14: Model Numbers With More Than 9 Ones or 9 Tens; Write In Expanded, Unit, Standard, and Word Forms

Suggested Lesson Structure

- Fluency Practice (10 minutes)
- Application Problem (12 minutes)
- Concept Development (28 minutes)
- Student Debrief (10 minutes)

Total Time (60 minutes)

Fluency Practice (10 minutes)

- Sprint 2.OA.2 (8 minutes)
- Happy Counting Up and Down by Ones Crossing 100 2.NBT.2 (2 minutes)

Sprint (8 minutes)

Materials: (S) Review of subtraction in the teens Sprint (The directions for administration of Sprints are in the appendix of the G2-M3-Fluency Progressions.)

Happy Counting Up and Down by Ones Crossing 100 (2 minutes)

T: Let’s play Happy Counting!
T: Watch my fingers to know whether to count up or down. A closed hand means stop. (Show signals as you explain.)
T: We’ll count by ones, starting at 76. Ready? (Teacher rhythmically points up until a change is desired. Show a closed hand then point down. Continue, mixing it up.)
Application Problem (12 minutes)

A second grade class has 23 students. What is the total number of fingers of the students?

T: Read this problem with me.
T: I’m very curious to see what you’ll draw to solve this! Talk with your partner to share ideas, and then I’ll give you 2 minutes to draw and label your picture.
T: (After several minutes.) Who would like to share their thinking?
S: “I drew 23 circles to be the 23 students. Then I put the number 10 in each to be the 10 fingers for everybody. Then I skip-counted by tens and got to 230.” → “I drew 23 ten-disks because each student has 10 fingers. Then I circled 1 group of 10 circles and wrote 100 because 10 tens equals 100. Then I circled another group of 10 circles. That made 200. And there were 3 tens left, which is 30. So the answer is 230.”
T: 230 what?
S: 230 fingers!
T: Why is it easier to draw 23 ten-disks than, say, 23 sets of hands?
S: “It’s faster!” → “It takes longer to draw 2 hands for every student instead of just 1 circle for each student.”
T: Good reasoning! It’s good to be fast if you can be accurate, but it’s also important to use a strategy that makes sense to you.
T: So how many fingers do 23 students have?
S: 23 students have 230 fingers!
T: Please add that statement to your paper.

Concept Development (28 minutes)

Concrete (16 minutes)

Materials: (T) White board, poster space or magnetized place value disks (S) Place value disks (9 hundreds, 15 tens, 15 ones), place value mat, pencil and paper, activity worksheet

T: On your place value mat, show me the number 14.
S: (Students show.)
T: What disks did you use from greatest to smallest?
S: 1 ten and 4 ones.
T: Change 1 ten for 10 ones. (Pause as students work.) What disks did you use this time?
S: 14 ones.
T: Discuss with your partner why this statement is true. (Silently write 1 ten 2 ones = 12 ones.)
S: “Yes, it is true.” → “It’s true because 1 ten is 10 ones and 10 + 2 is 12 ones.” → “Yes but my teacher said you can’t have more than 9 ones.” → “It’s okay to use more. It’s just faster to use a ten.”
T: Show me the number 140 to me with your disks.
S: (Students show.)
T: What place value disks did you use from greatest to smallest?
S: 1 hundred 4 tens.
T: Change 1 hundred for 10 tens. (Pause as students work.) What disks did you use this time?
S: 14 tens.
T: Touch and count by tens to find the total value of your tens.
S: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140.
T: What is the value of 14 tens? Answer in a full sentence, “The value of 14 tens is…."
S: The value of 14 tens is 140.
T: Discuss why this statement is true with your partner. (Silently write: 1 hundred 4 tens = 14 tens.)
T: (After discussion) Now discuss with your partner why this is true. (Silently write: 14 tens = 140 ones.)
T: Show me the number 512.
T: What disks did you use?
S: 5 hundreds 1 ten 2 ones.
T: Change 1 ten for 10 ones. (Pause as students work.) What disks did you use?
S: 5 hundreds 12 ones.
T: Discuss why the statement is true. (Write 5 hundreds 1 ten 2 ones = 5 hundreds 12 ones. Continue with more guided examples if necessary with a small group.)
T: First model A and then B. Tell the total value of each number you model.

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<tr>
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<td>12 tens 9 ones</td>
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NOTES ON SCAFFOLDING ELLS:
It may be appropriate to allow ELL students to demonstrate why each statement is true, either by drawing or modeling. Alternatively, it may be appropriate to group students with similar home-languages since the question is open-ended and emphasizes conceptual understanding.
Pictorial/Abstract Worksheet  (12 minutes)

Materials:  (S) Worksheet 2

Directions:  Represent each number 2 ways on the place value charts. The instructions will tell you what units to use.

T:  Bring your worksheet to our Debrief.
S:  Check your work carefully with a partner. How did you show each number? I will circulate and look at your drawings, too.
T:  (After two minutes.) Which ones were hard for you?
T:  (Ask questions, especially with the third page. If no one is forthcoming, choose one you saw many struggled with as you circulated.)
T:  Let’s look at question number 4. What number is written?
S:  206.
T:  Say 206 in expanded form.
S:  200 + 6

NOTES ON SCAFFOLDING DIVERSE LEARNERS:
Some groups of students may benefit from having the worksheet read aloud, or by working near a partner who can help them to read the directions as they work independently.

NOTES ON SCAFFOLDING ELLS:
The Debrief relies heavily on oral language and automaticity with that language. If your students need support, it may be appropriate to have them answer some questions on their personal boards. Alternatively, ask students to chorally respond at your signal so that you can build wait time in between responses.
Lesson 14: Model Numbers with More Than 9 Ones or 9 Tens; Write In Expanded, Unit, Numeral, and Word Forms

Date: 11/19/12

T:  100 + 100 is?
S: 200
T: 100 is how many tens?
S: 10 tens.
T: 10 tens + 10 tens is?
S: 20 tens.
T: 20 tens is?
S: 200
T: 206 = 2 hundreds 6 ones = 20 tens 6 ones. Talk to your partner about why this is true.
T: We can have more than 9 units. Let’s try some.
T: The value of 30 tens is?
S: 300.
T: 18 tens?
S: 180.
T: Excellent.

Exit Ticket

After the Student Debrief, instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students’ understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.
Lesson 14: Model Numbers with More Than 9 Ones or 9 Tens; Write In Expanded, Unit, Numeral, and Word Forms

Date: 11/19/12

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Whisper count as you show the numbers with place value disks.

A
Draw 18 using tens and ones.

B
Draw 18 using only ones.

A
Draw 315 using hundreds, tens, and ones.

B
Draw 315 using only hundreds and ones.
Lesson 14: Model Numbers with More Than 9 Ones or 9 Tens; Write In Expanded, Unit, Numeral, and Word Forms

Date: 11/19/12
Name ________________________________    Date ______________

1. Whisper-talk the numbers and words as you fill in the blanks.

   1. 18 = _____ hundreds _____ tens ______ ones
      18 = _____ ones

   2. 315 = _____ hundreds _____ tens ________ ones
      315 = _____ hundreds ________ ones

   3. 120 = _____ hundreds _____ tens ________ ones
      120 = _____ tens ________ ones

   4. 206 = _____ hundreds _____ tens ________ ones
      206 = _____ tens ________ ones

   5. 419 = _____ hundreds _____ tens ________ ones
      419 = _____ tens ________ ones

   6. 570 = _____ hundreds _____ tens
      570 = _____ tens

   7. 718 = _____ hundreds ________ ones
      748 = _____ tens ________ ones

   8. 909 = _____ hundreds ________ ones
      909 = _____ tens ________ ones

2. Mr. Hernandez’s class wants to trade 400 tens rods for hundreds flats with Mr.
   Harrington’s class. How many hundreds flats are equal to 400 tens rods?
Draw 241. Use hundreds, tens, and ones place value disks.

Chart B: Draw 241. Use only tens and ones place value disks.

Fill in the blanks.

9. 45 = ______ hundreds ______ tens _______ones
   45 = ______ ones

10. 682 = ______ hundreds ______ tens _______ones
    682 = ______ hundreds ______ ones
Name _______________________________ Date __________________

1. Whisper-talk the numbers and words as you fill in the blanks.

   A. 16 = ______ tens _______ones
      18 = ______ ones

   B. 217 = ______ hundreds ______ tens _______ones
      217 = ______ hundreds ______ ones

   C. 320 = ______ hundreds ______ tens _______ones
      320 = ______ tens _______ones

   D. 139 = ______ hundreds ______ tens _______ones
      139 = ______ tens ______ ones

   E. 473 = ______ hundreds ______ tens _______ones
      473 = ______ tens _______ones

   F. 680 = ______ hundreds ______ tens
       680 = ______ tens

   G. 817 = ______ hundreds _______ones
       817 = ______ tens _______ones

   H. 921 = ______ hundreds _______ones
       921 = ______ tens _______ones

2. Write down how you skip-count by ten from 350 to 240? You might use place value disks, number lines, bundles, or numbers.
Lesson 15: Explore a Situation with More Than 9 Groups of Ten

Suggested Lesson Structure

- Fluency Practice (12 minutes)
- Concept Development (30 minutes)
- Student Debrief (18 minutes)

Total Time (60 minutes)

Fluency Practice (12 minutes)

- Sprint 2.NBT.3 (8 minutes)
- Compare Numbers 2.NBT.4 (4 minutes)

Sprint (8 minutes)

Materials: (S) Expanded Notation Sprint (The directions for administration of Sprints are in the appendix of the G2-M3-Fluency Progressions.)

Compare Numbers: 0-99 Using <, >, = (4 minutes)

Materials: (T) 1 set of <, >, = comparison symbols (S) Baggie containing 2 sets of digit cards 0-9 per student and 1 personal board with marker and 1 set of <, >, = per pair

Students are seated in partners at their tables.

T: Take the digit cards out of your baggie. Use the cards to build a number from 0-99. Take 10 seconds.

T: Compare numbers with your partner. Place the appropriate symbol (show <, >, =) between them.

T: Read your number sentence to your partner using the words ‘greater than’, ‘less than’ or ‘equal to.’ Then use the language of units to explain how you know the number sentence is true.

T: For example, you might say ‘34 is less than 67. I know because 3 tens is less than 6 tens.’ Go.

S: “56 is greater than 23. 5 tens are greater than...
Lesson 15: Explore a Situation with More Than 9 Groups of Ten
Date: 11/19/12

LESSON 15

2 tens.” “12 is less than 22 because 1 ten is less than 2.” “79 is equal to 79. I know because the tens and ones are the same.”

T: Good. I’m holding our symbols face down. I’ll flip one over and we’ll read it to see which number “wins” this round. (Flip over a symbol and show it. This element of the game encourages students to diversify the numbers they make.)

T: Who wins?
S: Less than!
T: Yes, the number that is less than wins this time.
T: Let’s play again. Players, use your digit cards to make another number.

Continue, following the same sequence.

Concept Development (30 minutes)

Concrete (30 minutes)

Materials: (S) Worksheet (However, if you do not have a document camera for the Student Debrief, we suggest you give the students poster board for question 4. Students need access to base-ten materials (disks, bundles, blocks) at centers. Do NOT place them at the tables or explicitly suggest that students use them. This is so that they learn to “use appropriate tools strategically” -MP.5)

T: Let’s read our 4 problems.
S: Students read.
T: Partner A: Without looking at the paper, retell the problem to your partner.
T: Partner B: Without looking at the paper, retell the problem, too.
T: Your task in class today is to solve these “pencil problems” and record your thinking on paper so that you can share your solution strategies with another group.
T: Before we begin, does anyone have any questions?
S: How much time do we have?
T: Good question. I will give you time signals. You have 20 minutes in all. I will tell you when you have 15, 10

NOTES ON SCAFFOLDING ELLS:
Group students carefully to balance strengths and language support. It often works well to pair an ELL who has excellent conceptual understanding with a student who has very good language, but struggles with content. This pairing tends to foster supportive cooperation.

So that all students participate in articulating solutions, you may want to require that the group determine a different presenter for each problem. They should work together to make sure that each presenter is prepared to share the group’s work.
and 5 minutes left.

T:  Make sure to include a statement of your answers.
    You may begin!

As the students work, circulate. This is their second extended exploration. You have been teaching many days consecutively. This is a day to stand back and observe them independently “making sense of a problem and persevering in solving it.” (MP1). Encourage pairs to ask other pairs for help rather than ask you.

### Student Debrief (18 minutes)

T: Bring your work to our Debrief. Partners, find another group with whom to share your work just on questions 1-3 for now. Explain your solution strategies.

S: (Share with each other.)

T: Let’s go over the answers to questions 1-3. Wait for the signal, question 1?
S: 140 pencils.

T: Please give the answer in a full statement Jeremy.
S: There are 140 pencils in all.

T: Question 2?
S: The principal needs 60 pencils.

T: What unit are we solving for?
S: Boxes.

T: So does 60 pencils answer the question?
S: No.

T: How many boxes does the principal need?
S: 16 boxes.

T: Question 3. Does the principal have enough pencils?
S: No!!

T: How do you know?
S: (Possible answers.) He found 11 boxes in all. That’s 110 pencils. 110 and 140 is less than 300.” “He has 140 pencils. He found 70 and 40. That’s 110. So put those together you have 2 hundreds 5 tens, that’s 250. Not enough.” “You have 2 hundreds and then 10 and 40 is 50 so it’s just 250 not 300.” “He had 14 boxes. He found 11 boxes. That’s 25 boxes but he need 5 more to have 30 boxes.”

T: Good thinking. He does not have enough pencils. Let’s show...
two different solutions.

T: Now let’s share our work about question 4. (Possibly project the most concrete/pictorial work first which you feel best supports your mathematical objective.) Tell your partner what you see about how they solved the problem.

T: (Allow 1 or 2 minutes before continuing.) Now look at these students’ work (show the second one down from the top.) Tell your partner what you see about how they solved the problem.

T: (After giving them 1 or 2 minutes.) Did both groups get the same answer?

S: No!

T: Talk to your partner about why their answers are different and if both of them can be right.

T: Do you think both of their answers make sense?

S: Yes.

T: Now think about how each of them solved the problem.

Continue with the analysis of the student work. Get them to observe and analyze similarities and differences. The bottom paper is the most abstract solution. Ask the students to explain the mathematics.

Possibly have them follow up by writing a letter to the principal showing him their ideas and asking his thinking about the number of pencils to be ordered for their class for the four months. Have them run a sale or fund drive to make up the difference, assuming the principal was going to order less!

Exit Ticket

After the Student Debrief, instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students’ understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.
### Lesson 15: Explore a Situation with More Than 9 Groups of Ten

Date: 11/19/12

#### Sprint NYS COMMON CORE MATHEMATICS CURRICULUM 2

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Names ______________________ and ______________________ Date __________

Pencils come in boxes of 10.
There are 14 boxes.

1. How many pencils are there in all? Explain your answer using words, pictures, or numbers.

2. The principal wants to have 300 pencils for the second graders for October, November and December. How many more boxes of pencils does he need to get? Explain your answer using words, pictures, or numbers.
3. The principal found 7 boxes in the supply closet and 4 boxes in a desk drawer. Now does he have what he wants for the second graders? Explain your answer using words, pictures, or numbers.

4. How many boxes of pencils do you think would be good for your class to have ready for January, February, March and April? How many pencils is that? Explain your answer using words, pictures, or numbers.
Think about the different strategies and tools your classmates used to answer the pencil question. Explain a strategy you liked that is different from yours.
Pencils come in boxes of 10.

1) How many boxes should Erika buy if she needs 127 pencils?

2) How many pencils will she have left over after gets what she needs out of the boxes?

3) How many more pencils does she need to have 200 pencils?