

SESSION
2.3

Stickers: Hundreds, Tens, and Ones

MATH FOCUS POINTS

- Using a place-value model to represent 3-digit numbers as hundreds, tens, and ones
- Comparing 3-digit numbers by comparing like places (i.e., hundreds with hundreds, tens with tens, ones with ones)
- Reading and writing 3-digit numbers
- Representing 3-digit numbers in expanded form

VOCABULARY

- hundreds
- greater than
- hundreds place
- less than
- tens place
- tens

TODAY'S PLAN

MATERIALS



CLASSROOM ROUTINE: REVIEW AND PRACTICE

How Many Pockets?: Adding Four Groups



Student Activity Book, p. 317



Connecting cubes (4 bins)

Chart: "How Many Pockets?" (from Unit 4)



1 ACTIVITY

How Many Stickers: Hundreds, Tens, Ones?



Pairs



Teacher Presentation (or envelopes of stickers, from Session 2.2)



Student Activity Book, p. 318

Blank paper (1 sheet per student)



2 MATH WORKSHOP

3-Digit Numbers

2A How Many Stickers?

2B Guess My Number

2C Close to 100

2D Capture 5



2A Student Activity Book, pp. 318–319



S65* (optional; for the Intervention)

2B Materials from Session 2.2

2C Materials from Session 2.1

2D Materials from Sessions 1.2 and 1.3

1,000 Book and counters that fit on those squares (optional; for the Extension)



3 DISCUSSION

Equations for 3-Digit Numbers



Teacher Presentation (or use S65)

SESSION FOLLOW-UP: REVIEW AND PRACTICE

Daily Practice



Student Activity Book, p. 320

* See *Materials to Prepare* in the Investigation 2 Planner.

Common
Core State
Standards

Classroom Routines: 2.OA.B.2, 2.NBT.B.5, 2.NBT.B.6
Session: 2.NBT.A.1, 2.NBT.A.1b, 2.NBT.A.3, 2.NBT.A.4,
2.NBT.B.5, 2.NBT.B.8

Daily Practice: 2.NBT.A.3, 2.NBT.A.4

CLASSROOM ROUTINE: REVIEW AND PRACTICE

How Many Pockets?: Adding Four Groups



MATH FOCUS POINTS

- Collecting, counting, representing, and comparing data
- Adding four 2-digit numbers

Organize students into four groups, and give each a bin of cubes. Students take as many cubes as they have pockets and then figure out how many pockets in their group. Encourage them to think about facts they know as they combine their pockets.

Ask each group to share their total and give you their cubes, in towers of 10 and a tower of leftovers. Record the four totals, and display the cube towers beneath them.

Students work to determine the total number of pockets the class is wearing. They record their work on *Student Activity Book*, page 317. Encourage students to use what they know about adding tens and ones to determine the total number of pockets.

When students are finished, discuss a few strategies for combining the 4 quantities. Model each with the cubes and record equations. If students do not suggest finding the total of two groups and then adding the two subtotals, suggest it as a strategy. Confirm the total by counting the cube towers by 10s and then 1s, and record the data on the Pocket Data chart.

STUDENT ACTIVITY BOOK, P. 317

NAME _____ DATE _____

How Many Pockets?

Write the number of pockets in each group. Use the information to find the total number of pockets. **Answers will vary.**

Group 1: _____ Group 2: _____

Group 3: _____ Group 4: _____

UNIT 5 | 317 | SESSION 2.3 © Pearson Education 2

1 ACTIVITY

How Many Stickers: Hundreds, Tens, Ones?



Display the Teacher Presentation (or use 62 stickers: 6 strips, 2 singles).

INVESTIGATIONS 3
BY NUMBER, DATA, AND STORY

Sally went to Sticker Station to buy some sun stickers. She bought 6 strips of ten stickers and 2 singles. How many stickers did Sally buy?

Directions

Start Over

1 of 7

Sally went to Sticker Station to buy some sun stickers. She bought 6 strips of ten stickers and 2 singles. How many stickers did Sally buy? How would you write that number in words? How could we record this using an equation?

Record “sixty-two” and $60 + 2 = 62$. Discuss the connection between the two representations and the image of the stickers. Next, pose a problem that involves a sheet of 100 stickers.

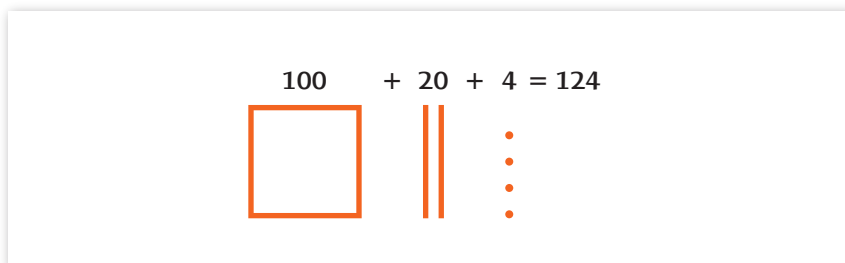
Sally also bought some moon stickers. She bought 1 sheet of 100 stickers, 2 strips of 10 stickers, and 4 singles.

Ask a student volunteer to display Sally’s moon stickers.

Talk with a partner about how we could write an equation that would represent the number of moon stickers Sally bought.

Then, ask a volunteer to share his or her equation while another explains what each number represents in the sticker representation.

Record the following, reminding students about sticker notation. **MWI MN TN**



[Nadia] said that Sally bought 124 stickers. She bought one sheet of 100. I’m going to use a square to represent this. (Draw a square under the 100.) **She bought two strips of 10, or 20. I’m going to draw two lines to show these.** (Draw 2 lines under the 20.) **And she bought 4 singles, so I’m going to draw 4 small dots.** (Draw 4 dots under the 4.)

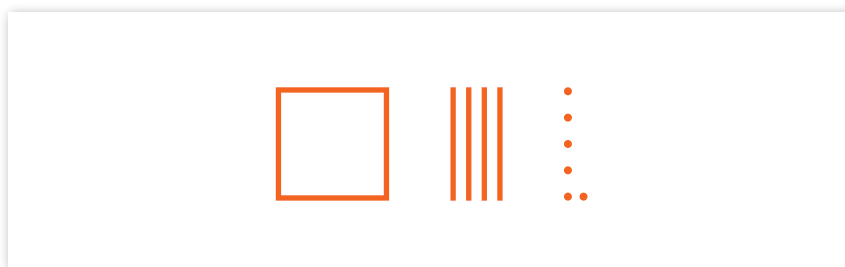
Write the number words for 124 under the representation, and ask students to think about the connection between the words, the number, and the sticker notation. **PD MPN**

This is how 124 is written in words. Which part of the sticker notation shows one hundred? And which part of the number shows one hundred?

Ask a volunteer to point out each part, and then ask students about the words, notation, and digits in the tens place and the ones place.

Pose another problem about 146. This time use only sticker notation.

This is what Jake bought when he went to Sticker Station.



Talk with a partner about how many stickers Jake bought. Then, on a piece of paper, show the stickers using sticker notation, and write an equation that represents these stickers.

Walk around to get a sense of how students are working with these ideas and to see if they can use the notation to write an equation.

This square shows that Jake bought one sheet of 100 stickers. How should I show that with a number? What about these 4 lines? How many strips of 10 did Jake buy? How many stickers is that? What about these 6 dots?

MATH WORDS AND IDEAS

MWI Representing Place Value: Hundreds, Tens, and Ones

MATH NOTE

MN **Expanded Form** Expanded form is a way to show how much each digit in a multi-digit number represents. The value of the number is the sum of each digit multiplied by the value of its place. In this example, 124 has 1 hundred, 2 tens, and 4 ones. This can be recorded as $100 + 20 + 4 = 124$. Sticker problems are one of the many opportunities in Grade 2 to record numbers in expanded form. Expanded form is sometimes referred to as expanded notation.

TEACHING NOTE

TN **Place-Value Representation** Students used sticker notation in Unit 3 and earlier in this unit. Sticker notation is a quick way of representing 2- and 3-digit numbers and is useful for representing the hundreds, tens, and ones structure of numbers. This structure is not as easily seen on the 100 or 1,000 charts or the number line.

PROFESSIONAL DEVELOPMENT

PD **TEACHER NOTE 5:** Place Value in Second Grade

MATH PRACTICE NOTE

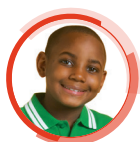
MPN **MP2 Reason abstractly and quantitatively.** Students make meaning for words and symbols by connecting number words, numerical symbols, representations such as sticker notation, and contexts such as Sticker Station.

As students share, record the following equation and the number word under the sticker notation, and connect both to the sticker notation.

$100 + 40 + 6 = 146$
 one hundred forty-six

So, Jake bought 146 stickers, and Sally bought 124 stickers. Who bought more stickers? How do you know?

STUDENTS MIGHT SAY



“Jake bought more because 146 is more than 124. It comes after 124 on the 200 chart. It’s bigger.”



“146 stickers are more than 124 stickers. You can tell because they both have a sheet of 100, but Jake has 4 strips of ten and Sally only has 2 strips of ten. The singles don’t really matter.”

Find ways to illustrate students’ ideas. For example, point out the number on a 1–200 chart or highlight the parts of each number using stickers or sticker notation.

[Leigh] said that you can compare the numbers by comparing each part of the number. First, you look at the **hundreds** or the number in the **hundreds place**. Since both numbers have 1 hundred, you look at the **tens place** next. **Four tens** is more than two tens. So, 146 is **greater than** 124. **MWI** **MPN**

Record $146 > 124$.

We can also look at which number is less than the other. 124 is **less than** 146.

Record $124 < 146$.

Suppose Sally bought another sheet of 100 stickers and added them to the 124. How many stickers would Sally have now? (224) What equation could represent this amount?

Record the following equation, and ask a student volunteer to use sticker notation below the equation.

$124 + 100 = 224$

MATH WORDS AND IDEAS

MWI Comparing 3-Digit Numbers

MATH PRACTICE NOTE

MPN **MP8** Look for and express repeated reasoning. As students recognize that each time they compare two numbers they use the same strategy, they can formulate a generalization.

What part of 124 changed when you added another 100? Right, the number in the hundreds place changed from a 1 to a 2 because now Sally has 2 sheets, or 2 groups of 100, plus 24 stickers. She has 224 stickers. **MPN**

Now who has more stickers, Sally or Jake? How can we show this information using the greater than or less than sign?

$$224 > 146 \quad 146 < 224$$

Explain that students will be doing a similar activity during Math Workshop. Display *Student Activity Book* page 318, and do the first number, 135, together so that students understand what information they need to include for each number.

2 MATH WORKSHOP

3-Digit Numbers



Students choose among the following activities.

2 A How Many Stickers?



Students use sticker notation to represent the 3-digit numbers on *Student Activity Book* pages 318–319. For each, they record the number of sheets, strips, and singles; they record the number of hundreds, tens, and ones; and write an equation in expanded form.

ONGOING ASSESSMENT Observing Students at Work

Students use place-value notation and expanded form to represent 3-digit numbers.

- Do students correctly read each number? Are they able to use sticker notation to represent the number of hundreds, tens, and ones in each number?
- Do students accurately record an equation that represents the notation and the value of each number?

STUDENT ACTIVITY BOOK, P. 318

NAME _____ DATE _____ (PAGE 1 OF 2)

How Many Stickers?
Fill in the chart based on the information given.

| Number | Sticker Notation | Sheets, Strips, Singles | Hundreds, Tens, Ones | Equation |
|--------|------------------|-----------------------------------|--------------------------------|----------------------|
| 135 | | 1 Sheets 3 Strips 5 Singles | 1 Hundreds 3 Tens 5 Ones | $100 + 30 + 5 = 135$ |
| 241 | | 2 Sheets 4 Strips 1 Single | 2 Hundreds 4 Tens 1 One | $200 + 40 + 1 = 241$ |
| 300 | | 3 Sheets 0 Strips 0 Singles | 3 Hundreds 0 Tens 0 Ones | $300 + 0 + 0 = 300$ |
| 318 | | 3 Sheets 1 Strip 8 Singles | 3 Hundreds 1 Ten 8 Ones | $300 + 10 + 8 = 318$ |

UNIT 5 | 318 | SESSION 2.3 © Pearson Education 2

STUDENT ACTIVITY BOOK, P. 319

NAME _____ DATE _____ (PAGE 2 OF 2)

How Many Stickers?

| Number | Sticker Notation | Sheets, Strips, Singles | Hundreds, Tens, Ones | Equation |
|--------|------------------|-----------------------------------|--------------------------------|----------------------|
| 407 | | 4 Sheets 0 Strips 7 Singles | 4 Hundreds 0 Tens 7 Ones | $400 + 0 + 7 = 407$ |
| 500 | | 5 Sheets 0 Strips 0 Singles | 5 Hundreds 0 Tens 0 Ones | $500 + 0 + 0 = 500$ |
| 750 | | 7 Sheets 5 Strips 0 Singles | 7 Hundreds 5 Tens 0 Ones | $700 + 50 + 0 = 750$ |
| 909 | | 9 Sheets 0 Strips 9 Singles | 9 Hundreds 0 Tens 9 Ones | $900 + 0 + 9 = 909$ |

UNIT 5 | 319 | SESSION 2.3 © Pearson Education 2

MATH PRACTICE NOTE

MPN **MP7** Look for and make use of structure. Just as students have recognized that when 10 is added to a number, the tens digit increases by 1, now they see that when 100 is added to a number, the hundreds digit increases by 1.

| Number | Sticker Notation | Sheets, Strips, Singles | Hundreds, Tens, Ones | Equation |
|--------|------------------|-----------------------------------|--------------------------------|----------------------|
| 135 | | 1 Sheets 3 Strips 5 Singles | 1 Hundreds 3 Tens 5 Ones | $100 + 30 + 5 = 135$ |
| 241 | | 2 Sheets 4 Strips 1 Singles | 2 Hundreds 4 Tens 1 Ones | $200 + 40 + 1 = 241$ |
| 300 | | 3 Sheets 0 Strips 0 Singles | 3 Hundreds 0 Tens 0 Ones | $300 + 0 + 0 = 300$ |
| 318 | | 3 Sheets 1 Strips 8 Singles | 3 Hundreds 1 Tens 8 Ones | $300 + 10 + 8 = 318$ |



DIFFERENTIATION Supporting the Range of Learners

INTERVENTION Suggest a Tool Talk with students who are having difficulty to identify what they are and are not understanding. Are they able to read the number in the first column? Use sticker notation to represent it? If not, can they interpret your representation of the number using sticker notation? If so, can they make a connection between the picture and the number of sheets/hundreds, strips/tens, and singles/ones?

INTERVENTION Adapt the Problem Use S65, How Many Stickers?, to provide more accessible numbers for students who can read numbers in the 100s but not beyond or are able to work only with tens and ones.

For a more comprehensive intervention activity to be done outside of class, see *Representing 3-Digit Numbers with Stickers and Equations* at the end of this investigation.

ENGLISH LANGUAGE LEARNERS Repeat and Clarify Help students understand the column headings on the chart on *Student Activity Book* page 318 and how to complete it. Work with students to complete the second row. For example, begin by having them build the number 241 using stickers, sheets, and singles. Then have students use their models for reference as you walk them through how to complete each cell in that row.

2 B *Guess My Number*



For complete details about this activity, see Session 2.2.



DIFFERENTIATION Supporting the Range of Learners

INTERVENTION Vary the Problem Students who are ready for more challenge can play on other pages of their 1,000 Book. The first clue should be, "My number is on the [201–400] chart."

RESOURCE MASTERS, S65

NAME _____ DATE _____

ACTIVITY

How Many Stickers?

| Number | Sticker Notation | Sheets, Strips, Singles | | | Hundreds, Tens, Ones | | | Equation |
|--------|------------------|-------------------------|--------|---------|----------------------|------|------|----------|
| | | Sheets | Strips | Singles | Hundreds | Tens | Ones | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

UNIT 5 | S65 | SESSION 2.3 © Pearson Education 2

2 C *Close to 100*



For complete details about this activity, see Sessions 2.1 and 2.2.

2 D *Capture 5*



For complete details about this activity, see Sessions 1.2 and 1.3.



DIFFERENTIATION Supporting the Range of Learners

EXTENSION Vary the Problem Students who are ready for more challenge can play the same game, but on the first page of their 1,000 Book (the 1–200 chart). In this version, the chips will be much more spread out and may need to be smaller to fit in the squares, and students will be adding and subtracting within 200.

3 DISCUSSION

Equations for 3-Digit Numbers



MATH FOCUS POINTS FOR DISCUSSION

- Using a place-value model to represent and compare 3-digit numbers as hundreds, tens, and ones
- Representing 3-digit numbers using expanded form

Display the Teacher Presentation (or use S65), and gather students to discuss what a row of the How Many Stickers? chart would look like for a few numbers they didn't investigate. This provides an opportunity to see whether and how students are generalizing about the composition of 3-digit numbers as hundreds, tens, and ones.



Drag sticker notation models to the workspace to show numbers. Use the DrawPad to complete the chart.

Start Over

| Number | Sticker Notation | Sheets, Strips, Singles | Hundreds, Tens, Ones | Equation |
|--------|------------------|-------------------------|----------------------|----------|
| | | ___ Sheets | ___ Hundreds | |
| | | ___ Strips | ___ Tens | |
| | | ___ Singles | ___ Ones | |

Sketch a sheet of 100, a strip of 10, and a single sticker in the second cell of the first row.

Take a minute to think. How many stickers do I have? How would I write that number?

After thinking on their own, ask students to turn and talk to a partner about how many stickers there are and how they figured it out.

STUDENTS MIGHT SAY



"Well there's 100, then 10 more is 110, and 1 more is 111."



"The 10 and the 1 make 11, and $100 + 11 = 111$."



"There's one of each! There's one sheet, one strip, and one single. Which means there's one hundred, one ten, and one one. $100 + 10 + 1 = 111$ "

Ask a volunteer to help you fill in the rest of the row.

Here's another problem. I bought 700 stickers.

Write 700 in the first cell of the second row, and ask a volunteer to sketch your stickers.

Now, we need to fill in the information about the number of sheets, strips, and singles and hundreds, tens, and ones. What should I write?

After recording, display the following:

| | | | |
|----------|---------|----------|----------|
| <u>7</u> | Sheets | <u>7</u> | Hundreds |
| <u>0</u> | Strips | <u>0</u> | Tens |
| <u>0</u> | Singles | <u>0</u> | Ones |

What equation would you write to show that you had seven hundreds and zero tens and zero ones?

STUDENTS MIGHT SAY



"Well I would write 700 for the seven sheets. Then I would write a plus sign and then a zero or maybe plus zero and plus zero again because you don't have any strips or singles."



"And you would have to write an equal sign and then 700 because you have 700 stickers. So, it would be 700 plus 0 plus 0 equals 700."

Record student suggestions in the rightmost cell. Some may be unsure about how to represent zero tens and zero ones. Explain that $700 + 0 + 0 = 700$ is a way to show that there are no strips or singles in the collection of stickers. **MN**

MATH NOTE

MN Adding Zero Discuss with students that the equation $700 + 0 + 0 = 700$ can also be written as $700 = 700$ and that $700 + 0 + 5 = 705$ can be written as $700 + 5 = 705$.

Suppose I added 5 single stickers to this group. How many stickers would I have now? What would they look like in sticker notation?

Again, work together to complete a row on S65, and display the relevant information about the composition of those numbers in a second way:

| | |
|------------------|-------------------|
| <u>7</u> Sheets | <u>7</u> Hundreds |
| <u>0</u> Strips | <u>0</u> Tens |
| <u>5</u> Singles | <u>5</u> Ones |

When I had 700 stickers we wrote $700 + 0 + 0 = 700$. What part of that equation would change to show this new amount? Would the 700 change? Why or why not? Would the number of tens change? Would the number of ones change?

$$700 + 0 + 0 = 700$$

$$700 + 0 + 5 = 705$$

Repeat the same steps with 710 stickers.

| | |
|------------------|-------------------|
| <u>7</u> Sheets | <u>7</u> Hundreds |
| <u>1</u> Strips | <u>1</u> Tens |
| <u>0</u> Singles | <u>0</u> Ones |

$$700 + 0 + 0 = 700$$

$$700 + 0 + 5 = 705$$

$$700 + 10 + 0 = 710$$