Grade 2 – Unit 5 – Module 3
Teachers Guide Sample

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Module 3
Exploring Place Value & Three-Digit Numbers

Print Originals

Pages renumber with each module.

Student Book Pages

Page numbers correspond to those in the Bridges Student Books.

Home Connections Pages

Page numbers correspond to those in the Home Connections books.

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Module 3

Exploring Place Value & Three-Digit Numbers

Overview

This module helps students develop an understanding of place value with 3-digit numbers. As students build, describe, compare, and order numbers, they make connections among money value pieces, base ten number pieces, standard form, and expanded form. They also use number paths and number lines as visual models to support skip-counting patterns. The module concludes with a new Work Place game and the Unit 5 Assessment.

Sessions	WU	P&I	WP	A	HC
Session 1 Hundreds, Tens & Ones The session opens with an activity in which students estimate and represent the number of pennies in a jar. After comparing their money value pieces and the base ten number pieces, students use the base ten number pieces to build 3-digit numbers to explore expanded form and the value of each digit. They spend the rest of the session at Work Places.		●	●		
Session 2 Base Ten Number Pieces to 1,000 The session opens with students visualizing what 1,000 might look like and then working in small groups to represent the number 1,000 using base ten number pieces. Other activities in this session include ordering 3-digit numbers, finding 10 more or 10 less than a number, and finding 100 more or 100 less than a number. Students spend time at Work Places, and the Money & Time Home Connection is introduced and assigned.		●	●		●
Session 3 Base Ten Connections to Number Paths After a choral counting warm-up, students work in groups to make a line of tens pieces to represent the number 1,000. The remainder of the session focuses on placing 3-digit numbers on number paths. After completing the related student book pages, students spend the rest of the session at Work Places.	●	●	●		
Session 4 The Number Line to 1,000 The session opens with a warm-up in which students compare a number path and a number line. Then the class works together to build a life-sized number line from 0 to 1,000, using student-suggested numbers and number tags for each multiple of 100. After completing the related student book pages, students spend time at Work Places, and the Numbers from 900 to 1,000 Home Connection is introduced and assigned.	●	●	●		●
Session 5 Unit 5 Assessment & Jump-a-Hundred: Introducing Work Place 5D The session opens with a warm-up that focuses on using a number line to skip-count by 100s forward or backward from any 3-digit number. Then the teacher introduces a new Work Place game called Jump-a-Hundred, which focuses on the same skill. Then students take the Unit 5 Assessment and go to Work Places as they finish.	●	●	●	●	

WU – Warm-Up, **P&I** – Problems & Investigations, **WP** – Work Places, **A** – Assessment, **HC** – Home Connection

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Materials Preparation

Each session includes a complete list of the materials you'll need and notes about any preparation you'll need to do. If you would like to prepare materials for the entire module ahead of time, you can use this to-do list.

Copies & Display

- [ ] Visit the Bridges Educator Site to review the Interactive Display Materials for this module. Decide whether you will use digital materials for display or copies of print originals and student pages. Make copies as needed.

Work Places

- [ ] Prepare the materials for Work Place 5D using the materials listed on the Work Place Guide.

Special Items

- [ ] Session 4:
  - Cut a piece of cord or heavy string at least 12 feet long to serve as a life-sized number line. Hang the string across the front of the classroom or in another location where all students can see and reach it. Make sure the string is stretched fairly tight and is anchored firmly at both ends. Alternatively, use a retractable clothesline to easily retract the string when it is not in use.
  - Print the Number Line Tags print originals on cardstock, then cut along the dotted lines. Fold the pieces along the solid lines to create tags that can be placed along the life-sized number line.

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Concepts, Skills & Practices	Sessions					Work Places					
	1	2	3	4	5	4C	4D	5A	5B	5C	5D
2.OA.2 Fluently add and subtract within 20 using mental strategies, and know from memory all sums of two one-digit numbers					A		●				
2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones. Understand the following as special cases: **a.** 100 can be thought of as a bundle of ten tens, called a "hundred" **b.** The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones)	P&I	P&I	P&I		A						
2.NBT.2 Count within 1000			P&I	P&I HC	A						
2.NBT.2 Skip-count by 5s, 10s, and 100s			WU P&I	P&I	WU P&I A			●			●
2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form	P&I	P&I			A						
2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons		P&I		HC	A					●	
2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations						●					
2.NBT.8 Mentally add 10 to a given number 100–900 or subtract 10 from a given number 100–900		P&I	P&I		A						
2.NBT.8 Mentally add 100 to a given number 100–900 or subtract 100 from a given number 100–900		P&I	P&I		WU P&I A						●
2.MD.1 Measure the length of an object in inches, feet, or yards by selecting and using appropriate tools such as rulers, yardsticks, and measuring tapes						●					
2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit						●					
2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.		HC									
2.MD.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately	P&I	HC			A			●	●	●	
2.MD.10 Draw a bar graph to represent a data set with up to four categories; solve simple put-together, take-apart, and compare problems using information presented in a bar graph									●		
2.MP.2 Reason abstractly and quantitatively										●	

WU – Warm-Up**, WU* –** Optional Warm-Up**, P&I –** Problems & Investigations**, A –** Assessment**, HC –** Home Connection

Concepts, Skills & Practices	Sessions					Work Places					
	1	2	3	4	5	4C	4D	5A	5B	5C	5D
2.MP.3 Construct viable arguments and critique the reasoning of others				**WU P&I**							
2.MP.7 Look for and make use of structure	**P&I**	**P&I**	**P&I**	**P&I**							
2.MP.8 Look for and express regularity in repeated reasoning			**WU**		**WU P&I**						●

WU – Warm-Up**, WU* –** Optional Warm-Up**, P&I –** Problems & Investigations**, A –** Assessment**, HC –** Home Connection

Session 1

Hundreds, Tens & Ones

Summary

The session opens with an activity in which students estimate and represent the number of pennies in a jar. After comparing their money value pieces and the base ten number pieces, students use the base ten number pieces to build 3-digit numbers to explore expanded form and the value of each digit. They spend the rest of the session at Work Places.

Module 3 Learning Goals

Students learn about place value of 3-digit numbers.

- ■ **Students construct and compare representations of 3-digit numbers.**
- □ Students explore expanded form as they compare and order 3-digit numbers.
- □ Students investigate relationships among 3-digit numbers on a number path.
- □ Students investigate relationships among 3-digit numbers on a number line.
- □ Students use their place value understanding to skip-count by 100s from numbers within 1,000.

Materials

Problems & Investigations Hundreds, Tens & Ones	
Copies & Display	**PO P1** Pennies in a Coin Jar **PO P2** Same & Different — Kinds of Pieces **SB 59–60** Hundreds, Tens & Ones
Kit Materials	• money value pieces (see Preparation) • large base ten number pieces (see Preparation)
Classroom Materials	• copy paper (1 sheet, for cover) • student whiteboards, markers, and erasers (class set) • whiteboard or chart paper
Work Places in Use	
4B Measuring in Yards (introduced in Unit 4, Module 2, Session 2) **4C** Measure & Compare (introduced in Unit 4, Module 2, Session 3) **4D** Climb the Beanstalk (introduced in Unit 4, Module 2, Session 4) **5A** Close to 25¢ (introduced in Unit 5, Module 2, Session 2) **5B** Beat You to $1.00 (introduced in Unit 5, Module 2, Session 3) **5C** Three Spins to Win (introduced in Unit 5, Module 2, Session 6)	

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

Vocabulary

**Word Resource Card available*

decimal point
digit*
dime*
dollar ($)*
expanded form*
hundreds*
nickel*
ones*
penny*
quarter*
tens*

Preparation

Prepare containers of money value pieces and base ten number pieces for small groups of students to share throughout today's session. Make sure each container of money value pieces has at least nine dollar pieces.

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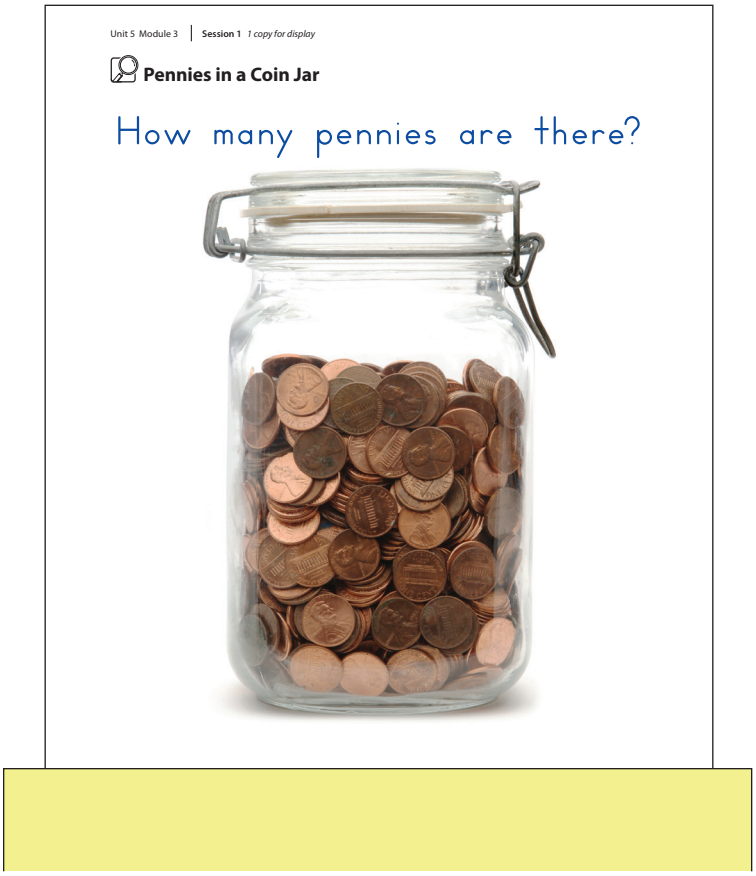
Problems & Investigations

Hundreds, Tens & Ones

How Many Pennies?

1 Display the Pennies in a Coin Jar print original. Cover the hint at the bottom of the page with a sheet of paper.

- Share with students that a class collected a lot of coins in their coin jar. They had to sort the different kinds of coins into different jars, and this is a picture of their pennies.
- Ask students to think-pair-share: *What do you notice? What do you wonder?*
- After a few moments, invite volunteers to share their observations and questions with the class.
- One of students' questions will undoubtedly be, "How many pennies are there?" When the question arises, let students know that you were wondering the same thing. Write the question at the top of the print original.



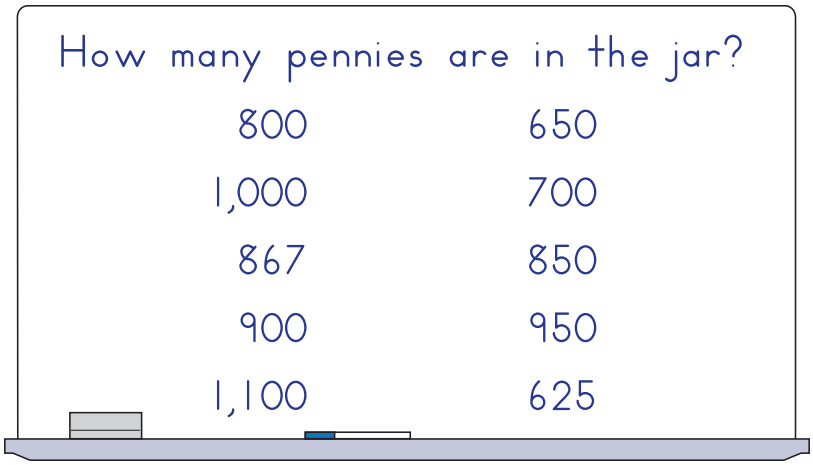
2 Ask students to estimate the number of pennies.

- First, have them estimate the number of pennies using only the image. (You do not need to record students' estimates yet.)
- Then ask students whether they would like a hint. Reveal and read the hint at the bottom of the print original: *It takes 600 pennies to fill half of the jar.*
- Ask students to think-pair-share new estimates and explain their thinking.
- Invite volunteers to share their estimates and explanations with the class. Record students' estimates on the board or on chart paper.

Equity-Based Practice

Challenging spaces of marginality

Asking students to explain their estimation strategies to their peers positions them as sources of expertise. This type of student-to-student interaction encourages them to independently investigate each other's strategies as they become autonomous learners.



Students *It's more than half full, so there has to be more than 600 pennies.*

It's a little bit more than 600. Maybe 200 more? That would make it 800 pennies.

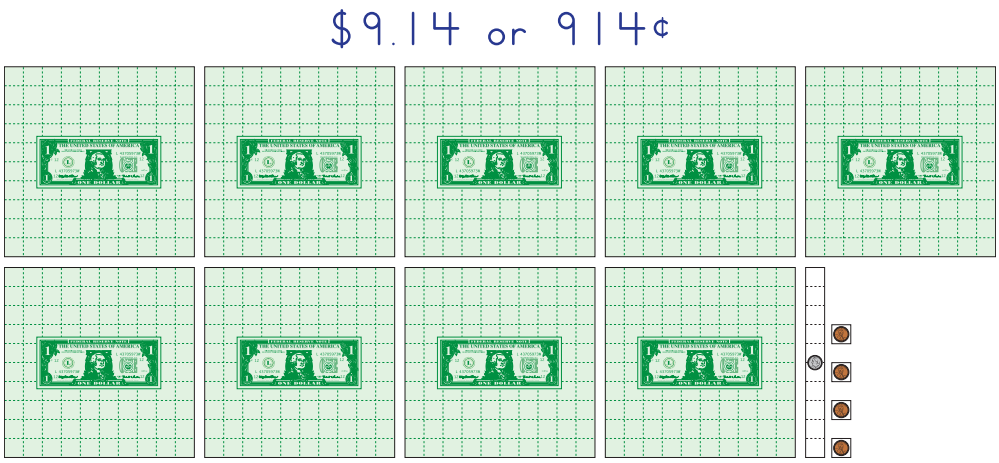
If the jar was full of pennies, it would have 600 in the bottom half and 600 in the top half. The top part is missing a lot of pennies though, so I think it's 600 on the bottom and 300 on the top. That's 900 pennies!

3 When there are no more estimates to share, reveal the actual number of pennies in the jar: 914.

- Write *914 pennies* beside the jar on the print original.
- Ask the following questions to prompt discussion:
  - » *Did the actual number of pennies surprise you? Why or why not?*
  - » *Is the actual number of pennies between our least and greatest estimates? How do you know?*
  - » *How many cents is 914 pennies?*
  - » *How many dollars and cents is 914 pennies? How would you write that amount using a dollar sign and a decimal point?*
  - » *Which of the estimates is closest to the actual number? How do you know?*
  - » *What is the difference between the closest estimate and the actual number of pennies? How do you know?*

4 Ask students to represent the value of the pennies using their money value pieces.

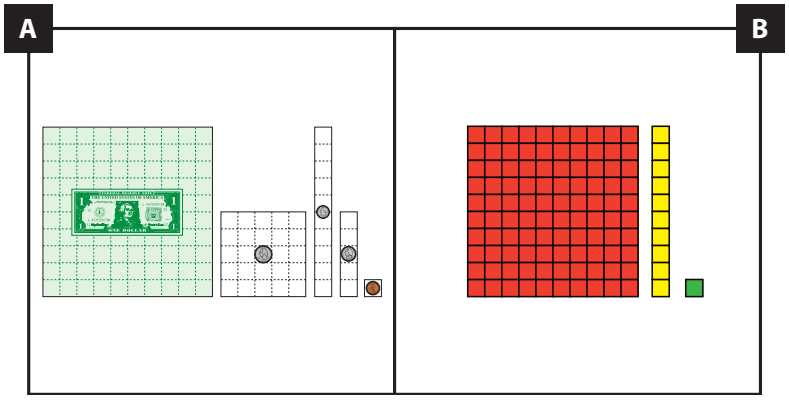
- Say: *I was wondering what 914 pennies would look like using money value pieces, but our classroom doesn't have that many penny pieces. How could you show the value of 914 pennies using the fewest money value pieces?*
- Have small groups work together to represent the amount using their money value pieces.
- When they are ready, have a group share their representation and thinking with the class.
- If they have not already done so, ask students how to write the money amount using the cent sign or the dollar sign and a decimal point.



Thinking About Base Ten Number Pieces

5 Display the Same & Different — Kinds of Pieces print original.

- Give students time to think quietly about the images, then ask:
  - » *What do you notice?*
  - » *What is mathematically the same about the two pictures?*
  - » *What is mathematically different?*
- Have students share their ideas, first in pairs then as a class. Encourage students to explain their thinking during the discussion.



Students *The dollar piece is like the hundreds piece. They're both big squares with 100 little squares inside.*

The dime piece is like the tens piece because they're both rectangles with 10 small squares.

The penny piece is like the ones piece. They're both 1 little square.

Students *They are different because picture A has money value pieces and picture B has base ten number pieces.*

The pieces in picture A show money amounts, but you can use the pieces in picture B to represent all kinds of things.

Picture A has some shapes that picture B doesn't, like the quarter piece and the nickel piece.

Instructional Routine

Same and different

Comparing and contrasting money value pieces and base ten number pieces helps students make connections between the two kinds of tools. Why do some money value pieces have a corresponding base ten number piece while others do not?

6 Have students name and use their base ten number pieces to build some numbers that are greater than 100 and less than 1,000.

- Ask volunteers for 3-digit numbers, and record their responses on the board. If needed, start by naming a few numbers on your own. You may want to revisit with students that 3-digit numbers have three digits, one in each place to show hundreds, tens, and ones. If students would find it helpful, write an example of a 3-digit number on the board with the hundreds, tens, and ones places identified, or draw a chart with three columns to show the hundreds, tens, and ones places.
- Invite students to identify the greatest number and the least number and to explain their reasoning.
- Have partners pick one of the numbers on the board and use their base ten number pieces to represent the number.
- Invite partners to share with the class which number they picked and how many hundreds, tens, and ones pieces they used.
- Record students' responses on the board using expanded form. For example, if students share that they represent 534 as 5 hundreds, 3 tens, and 4 ones, write 534 = 500 + 30 + 4 on the board.

7 After several partners have shared, discuss the values of the digits in each of the numbers.

- Point to one of the numbers written in expanded form, and ask students what this form of a number is called. Ask students to share why they think it is helpful to see 3-digit numbers written in expanded form.
- Let students know that expanded form helps them see the value of each digit. For example, the digit 5 in 534 has a value of 500, the digit 3 has a value of 30, and the digit 4 has a value of 4. Explain this using one of the 3-digit numbers in expanded form on the board as an example.
- Point to one of the 3-digit numbers on the board, and ask students to think-pair-share: *What is the value of the digit in the hundreds place? How do you know?* Let students know they may use their whiteboards and base ten number pieces to help.
- Invite one or more volunteers to share their thinking with the class.
- Ask students to think-pair-share the value of digits in the tens and ones places and explain how they know.
- Repeat this process with several other numbers on the board.

SUPPORT When asked to name the value of a digit, some students might simply restate the digit. For example, when asked to name the value of the digit in the tens place in 534, students may respond with "3." These students may benefit from scaffolding the question:

» *Which digit is in the tens place?*

» *How can you represent the value of that digit with the base ten number pieces? Should you use ones pieces, tens pieces, or hundreds pieces? How many pieces should you use?*

» *What is the value of those 3 tens pieces? How do you know?*

Completing the Student Book Pages

8 Display the Hundreds, Tens & Ones pages, and ask students to find them in their student books. Read and review the instructions with the class.

9 When students understand what to do, let them work individually or with a partner to complete the assignment.

Work Places

10 When they finish or as time allows, have students get their folders and go to Work Places.

Based on the results of the Money Checkpoint you administered at the end of Module 2, identify students who could benefit from additional instruction and practice with money amounts. The following chart offers a variety of suggestions for working with small groups during Work Places, as time allows, throughout the rest of Unit 5.

Items	Areas for Practice	Differentiation
1, 4, 5	Solve problems involving collections of coins, using the ¢ symbol	• Work Place 5A • Work Place 5B • Bridges Intervention Volume 9, Module 2
2	Count collections of coins	
3	Solve problems involving collections of coins and dollar bills, using the ¢ or $ symbols	• Work Place 5C • Activities similar to Unit 5, Module 2, Session 5 Warm-Up: Same & Different—Money Symbols • Unit 5, Module 2, Session 5 Problems & Investigations: Dollars & Cents

11 Close the session.

- Give students a moment to update their Work Place Logs with the Work Places they visited.
- Have students clean up and put away the Work Place materials and return their Work Place folders.
- Write the number 793 on the board, and pose a few place value questions:
  - » *What is the value of the digit in the tens place?*
  - » *What is the value of the digit in the hundreds place?*
  - » *What is the value of the digit in the ones place?*
  - » *How would you write this number in expanded form?*

Session 2

Base Ten Number Pieces to 1,000

Summary

The session opens with students visualizing what 1,000 might look like and then working in small groups to represent the number 1,000 using base ten number pieces. Other activities in this session include ordering 3-digit numbers, finding 10 more or 10 less than a number, and finding 100 more or 100 less than a number. Students spend time at Work Places, and the Money & Time Home Connection is introduced and assigned.

Module 3 Learning Goals

Students learn about place value of 3-digit numbers.

- ☐ Students construct and compare representations of 3-digit numbers.
- ■ **Students explore expanded form as they compare and order 3-digit numbers.**
- ☐ Students investigate relationships among 3-digit numbers on a number path.
- ☐ Students investigate relationships among 3-digit numbers on a number line.
- ☐ Students use their place value understanding to skip-count by 100s from numbers within 1,000.

Materials

Problems & Investigations Base Ten Number Pieces to 1,000	
Copies & Display	**PO P3** What Comes Next **SB 61–62** Comparing & Ordering Three-Digit Numbers
Kit Materials	large base ten number pieces (see Preparation)
Classroom Materials	student whiteboards, markers, and erasers (class set)
Work Places in Use	
4B Measuring in Yards (introduced in Unit 4, Module 2, Session 2) **4C** Measure & Compare (introduced in Unit 4, Module 2, Session 3) **4D** Climb the Beanstalk (introduced in Unit 4, Module 2, Session 4) **5A** Close to 25¢ (introduced in Unit 5, Module 2, Session 2) **5B** Beat You to $1.00 (introduced in Unit 5, Module 2, Session 3) **5C** Three Spins to Win (introduced in Unit 5, Module 2, Session 6)	
Home Connection	
Copies & Display	**HC 113–114** Money & Time

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

Vocabulary

**Word Resource Card available*

expanded form*
hundreds*
ones*
one thousand (1,000)
tens*

Preparation

Divide the base ten number pieces into four containers, with an ample supply of tens and ones pieces and at least 10 hundreds pieces in each. Plan to divide students into four groups and give each group one of the containers before step 3.

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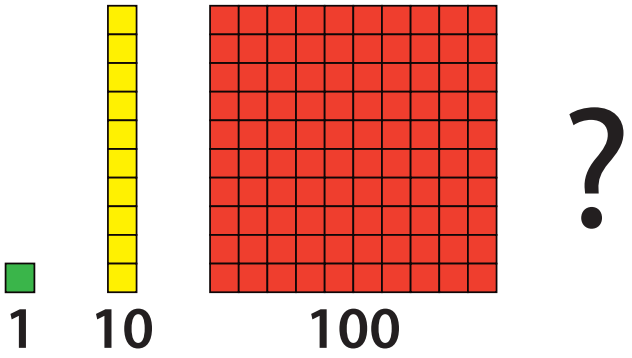
Problems & Investigations

Base Ten Number Pieces to 1,000

What Comes Next?

1 Display the What Comes Next print original, and ask students to take a few moments to observe the sequence.



2 Invite students to think-pair-share their observations and questions about the sequence, then invite volunteers to share with the class. (Students do not need access to their whiteboards or the base ten number pieces yet.)

> ***Students*** *The numbers get bigger each time.*
>
> *There's no 0 in the first number. The next number has one 0, and the next one after that has to 0s. The next number should have three 0s, so I think 1,000 is next!*
>
> *Each number has a base ten number piece. I wonder how to show 1,000 with the number pieces? Maybe it's a big square?*
>
> *The number pieces might go back and forth from square to rectangle, so maybe 1,000 looks like a big rectangle!*
>
> *I don't think we have a base ten number piece for 1,000, but we could put together ones, tens, or hundreds to build 1,000.*

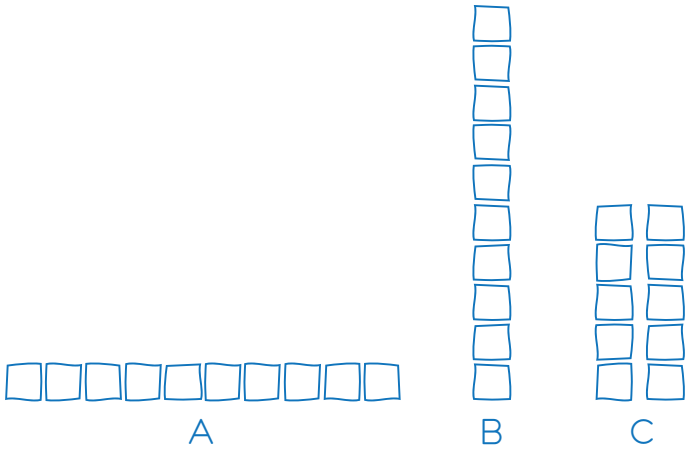
3 Divide the class into four groups, and give each group a container of base ten number pieces. Have the students in each group work together to represent the number 1,000 using their base ten number pieces.

- Keep the print original displayed as students work.
- Make sure students understand there is more than one way to represent 1,000.
- Groups who finish early can try to show 1,000 another way using their base ten number pieces or by drawing on their whiteboards.

SUPPORT Look and listen for students who attempt to build 1,000 using only ones or tens pieces. Encourage these students to look for more efficient ways to build 1,000. Ask: *What would happen if you used larger base ten number pieces?*

4 When groups are finished, invite them to share their representations of 1,000 with the class.

As groups share, sketch base ten number pieces on the board to represent their thinking.



Group A *We put hundreds pieces in a row and counted by 100s — 100, 200, 300, 400, 500, 600, 700, 800, 900, 1,000. That's 10 hundreds!*

Group B *We did something similar, but we went up and down. That way it kind of looks like the tens piece in that pattern, but we built it with hundreds instead of ones.*

Group C *We knew that 500 and 500 is 1,000, so we made two groups of 5 hundreds pieces.*

CHALLENGE Ask: *What comes next in the sequence after 1,000? What do you think it might look like?*

Building Numbers within 1,000

5 Have pairs of students work together to place five numbers in order.

- Write the numbers 371, 581, and 319 on the board.
- Ask volunteers for two other 3-digit numbers to add to the list. Write the two numbers students chose next to the three numbers you already wrote.

371 581 319 936 123

- Ask students to order the five numbers from least to greatest.
- Let them know they can use their base ten number pieces if they want, but they should record the order of the numbers on their whiteboards. Remind them to be ready to share their thinking with the class.

6 Invite students to share their solutions and strategies with the class.

- Ask for solutions first, and record the orders suggested by students on the board. If more than one order is suggested, record them all on the board for the class to consider and discuss.

371 581 319 936 123

123 319 371 581 936

- Ask students to share their strategies for putting the numbers in order.

Xavier *We sketched each number with drawings of number pieces. Then we moved them around so the sets of pieces were in order from smallest to largest.*

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Rosalinda *We looked at the digits. The number 123 is the least because it only has 1 hundred, then come the two numbers that have 3 hundreds, then the number with 5 hundreds, and the number with 9 hundreds comes last.*

Teacher *How did you figure out the order of the numbers with 3 hundreds?*

Rosalinda *We saw the 3 hundreds were the same. So we looked at 71 and 19, and 71 is greater than 19.*

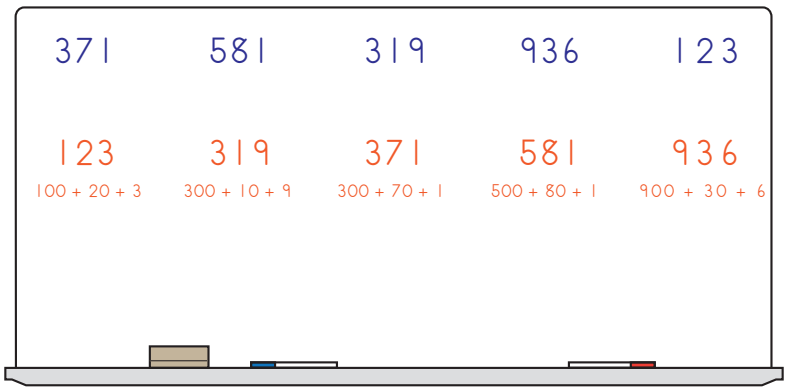
Hiroko *Or you can look at the number pieces. You can tell 371 is greater than 319 because it has a lot more tens pieces. The number 319 has 1 ten and the number 371 has 7 tens, so 371 is greater.*

7 If students don't mention it, let them know that thinking about a number's expanded form is another way to order numbers.

- Write the expanded form of the first number in the list, and model your thinking as you write.

  Teacher *The digit 1 is in the hundreds place, so it has a value of 100. The digit 2 is in the tens place, so it has a value of 2 tens, or 20. The digit 3 is in the ones place, so it has a value of 3 ones, or 3.*

- Ask students to guide you as you write the expanded form of the other numbers on the board.



- Ask students to share what one of the numbers looks like when built with base ten number pieces. How is the model built from base ten number pieces similar to the 3-digit number and its expanded form? What connections can they make among the representations?
- Ask students to describe how the expanded form of the numbers can make it easier to determine the order of the numbers.

  Students *You need to look at how many hundreds are in the expanded form, 100 is less than 300.*

  And if the hundreds are the same, then you look at the tens.

8 If time allows, repeat steps 5–7 using different 3-digit numbers. This time, ask students to put the numbers in order from greatest to least.

Math Teaching Practice

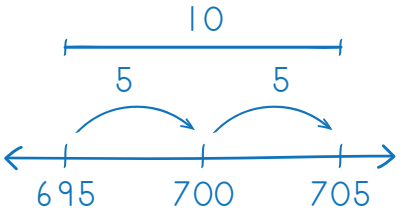
Use and connect mathematical representations

Today's session encourages students to represent 3-digit numbers using standard form, expanded form, and base ten number pieces. Representing numbers in these ways helps students make connections between each digit in the number and the digit's value.

10 More & 10 Less, 100 More & 100 Less

9 Let students know they will play a game called More or Less, and explain: *I will write a number on the board and ask you to find the number that is more or less than the number by 10 or by 100. When you think you know the answer, quietly show thumbs-up in front of your chest. When the class is ready, I will call on students to share their solutions and how they figured it out.*

- Let students know they can use their whiteboards or base ten number pieces to help.
- If students' strategies involve breaking a number apart, represent their thinking on the board using jumps on an open number line.



- Conduct the activity using the following numbers:
  - » 472 (find 10 more)
  - » 367 (find 100 less)
  - » 805 (find 10 less)
  - » 739 (find 100 more)
  - » 695 (find 10 more)

SUPPORT Work with students to draw a picture of the base ten number pieces that match each 3-digit number. Use a large square to represent each hundred, a vertical line to represent each ten, and dot to represent each one. Then revise the drawing to show 10 more or less and 100 more or less.

Completing the Student Book Pages

10 Display the Comparing & Ordering Three-Digit Numbers pages, and ask students to find the pages in their student books. Read and review the instructions with the class.

11 When students understand what to do, let them work individually or with a partner to complete both pages.

Work Places

12 When they finish or as time allows, have students get their folders and go to Work Places.

13 Close the session.

- Give students a moment to update their Work Place Logs with the Work Places they visited.
- Have students clean up and put away the Work Place materials and return their Work Place folders.
- Write the number 425 on the board, and pose a few quick place value questions:
  - » *What is the value of the digit in the tens place?*
  - » *What is the value of the digit in the hundreds place?*
  - » *What is the value of the digit in the ones place?*
  - » *How would you write this number in expanded form?*

Home Connection

14 Introduce and assign the Money & Time Home Connection, which provides more practice with the following skills:

- Tell and write time from analog and digital clocks to the nearest five minutes
- Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using the $ and ¢ symbols appropriately

Session 3

Base Ten Connections to Number Paths

Summary

After a choral counting warm-up, students work in groups to make a line of tens pieces to represent the number 1,000. The remainder of the session focuses on placing 3-digit numbers on number paths. After completing the related student book pages, students spend the rest of the session at Work Places.

Module 3 Learning Goals

Students learn about place value of 3-digit numbers.

- ☐ Students construct and compare representations of 3-digit numbers.
- ☐ Students explore expanded form as they compare and order 3-digit numbers.
- ■ **Students investigate relationships among 3-digit numbers on a number path.**
- ☐ Students investigate relationships among 3-digit numbers on a number line.
- ☐ Students use their place value understanding to skip-count by 100s from numbers within 1,000.

Materials

Warm-Up Choral Counting by 10s to 500	
Classroom Materials	markers in several colors
Problems & Investigations Base Ten Connections to Number Paths	
Copies & Display	**PO P4** Placing Numbers on a Number Path **PO P5** Number Path Problems **SB 63–64** Number Paths
Kit Materials	large base ten number pieces (see Preparation)
Classroom Materials	• large base ten number pieces (see Preparation) • tape or magnets (see Preparation) • sticky notes (optional) • 1 ½″ x 2″ sticky note • copy paper (1 sheet, for cover)
Work Places in Use	
4B Measuring in Yards (introduced in Unit 4, Module 2, Session 2) **4C** Measure & Compare (introduced in Unit 4, Module 2, Session 3) **4D** Climb the Beanstalk (introduced in Unit 4, Module 2, Session 4) **5A** Close to 25¢ (introduced in Unit 5, Module 2, Session 2) **5B** Beat You to $1.00 (introduced in Unit 5, Module 2, Session 3) **5C** Three Spins to Win (introduced in Unit 5, Module 2, Session 6)	

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

Vocabulary

**Word Resource Card available*

hundreds*
number path*
one thousand (1,000)
ones*
tens*

Preparation

- Gather all the tens pieces from the base ten number piece sets, and divide them into containers with at least 100 in each. (If you have all 300 tens pieces that came with the Bridges kit, you'll be able to make three containers of 100. If not, divide the pieces equally between two containers.) Be prepared to move the containers of base ten number pieces outside the classroom for the Tens Pieces to 1,000 activity.

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- Plan to divide the class into two or three groups. Each group will arrange 100 of their tens pieces to form a line that's 1,000 units long. A completed line will be 20 meters (about 66 feet) long. Unless your classroom is quite large, you will want to think of where and how students will represent 1,000. One option is to look for a place in your school where students can make such a long line, such as the hallway, the gym, or outside. Another option is to have students make 10 separate lines with 10 tens pieces in each to form a large rectangle, similar to the image shown in step 4 of this session.
- Use tape or magnets to attach 10 tens pieces to the whiteboard as shown, alternating between yellow and green, low enough so students can reach it.

Warm-Up

Choral Counting by 10s to 500

1 Invite students to choral count by 10s from 10 to 500.

- As students count, record the numbers in rows of 10 on the board.
- Pause about halfway through the count to ask students what they notice.

10	20	30	40	50	60	70	80	90	100
110	120	130	140	150	160	170	180	190	200
210	220	230	240	250	260	270	280	290	300
310	320	330	340	350	360	370	380	390	400
410	420	430	440	450	460	470	480	490	500

- After finishing the count, invite students to share what they notice about the numbers on the board. What patterns do they see?
  - » It might be helpful to have students come up to the board and point to the numbers so others can more easily see and understand the patterns.
  - » Circle the numbers and make notations in different colors to highlight students' observations.

Students *Each row ends with a hundreds number: 100, 200, 300, 400, 500.*

When you go down the columns, the last two digits are the same.

When you go down the columns, the digit in the hundreds place goes up by 1 each time. It's like adding 100.

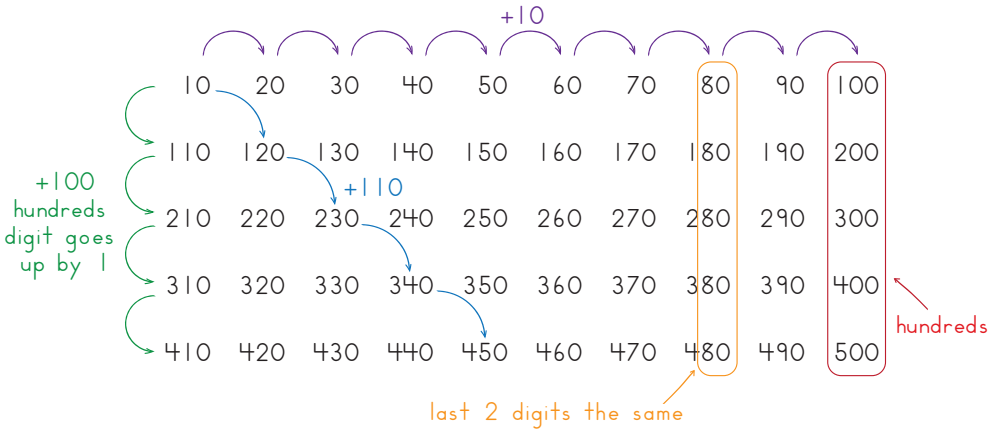
When you go down one and to the right one, the numbers go up by 110. That's because you have to count by 10s eleven times to get to that number, and 11 tens is 110.

The numbers in each row go up by 10. The digit in the tens place goes up by 1. When you get past the 9 in the tens place, the tens digit starts again at 0.

Digital Resources

To view this choral count digitally, enter share code 25AS-PM2P in the Number Chart app. Use the Choral Counting tool to reveal the numbers.

Apps are available at apps.mathlearningcenter.org.



- Students might also make the following observations:
  - » All the numbers end in 0, or have a 0 in the ones place.
  - » When you go diagonally from the lower left to the upper right, the numbers decrease by 90.
  - » When you go diagonally from the upper right to the lower left, the numbers increase by 90.
  - » All the numbers are even.

Problems & Investigations

Base Ten Connections to Number Paths

Tens Pieces to 1,000

2 Hold up a tens piece, and have students think-pair-share: *How many tens would it take to represent the number 1,000? If you made a long line of tens pieces to represent the number 1,000, how long would it be? Could we show a line of 1,000 units in our classroom, or do you think we would have to move to the hallway (gym, outside, and so on)?*

When students are ready, invite them to share their ideas with the class.

> ***Students*** *It takes 10 hundreds to make 1,000 and it takes 10 tens to make 100, so I think we'll need 10 groups with 10 tens in each group.*
>
> *That's 100 tens!*
>
> *I think 100 tens would go from one side of our classroom to the other side.*
>
> *No way, I think we'll have to go to the hallway!*
>
> *Maybe it would fit if we went diagonally from one corner to the other it.*

3 Divide the class into two or three groups. Give each group a container of tens pieces, and have them work together to represent the number 1,000 using a long line of tens pieces.

- Encourage each group to develop a strategy before they start making their line. How do they plan to keep track of the number of tens pieces they've used?
- If students are sure that the classroom is not large enough, relocate to a larger space right away (for example, the hallway, the gym, or outside). If they think the line will fit in the classroom, you can let students begin working in the classroom until

they come to the conclusion that they'll need more space. Alternatively, consider having students build 10 lines with 10 tens in each line to form a large rectangle (similar to the image shown in step 4), instead of one very long line.

- Give students plenty of time to complete the activity.

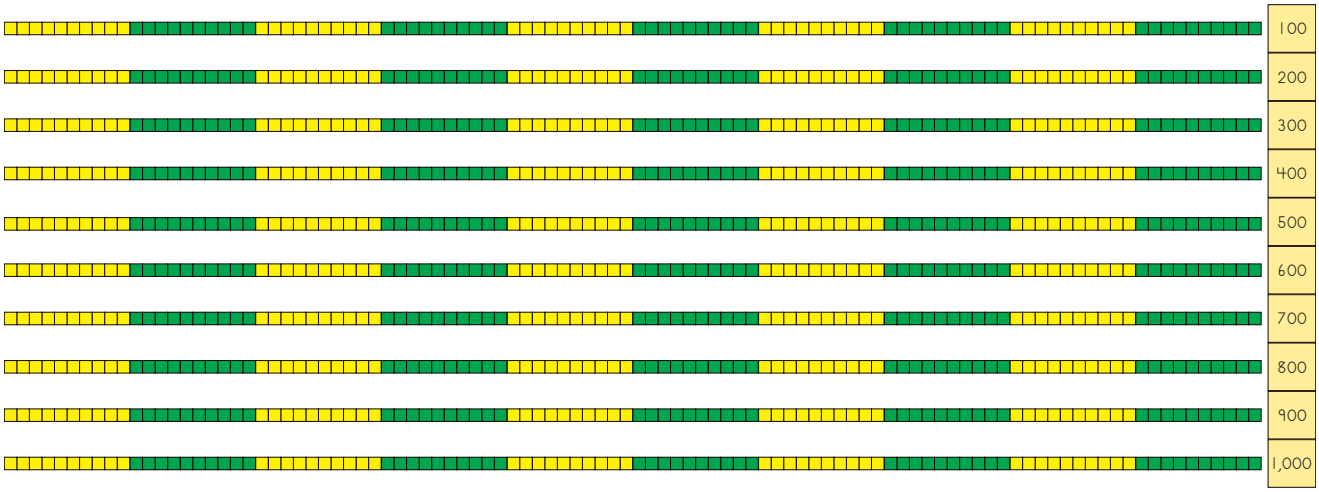
4 When students are ready, invite each group to present their line of tens pieces and explain how they know it represents 1,000.

- Consider asking the following questions to prompt discussion:
  - » *How many tens pieces did you use to make 1,000?* (100 tens pieces)
  - » *How did you keep track of how many tens pieces you used?*
  - » *Do your lines remind you of any other visual models or tools you have used in math class?* (number paths, number lines, skip-counting, Unifix cube trains, and so on) *How are your lines like those other models and tools? How are they different?*
- Give groups time to ask and respond to each other's questions.

Group A *We used the colors of the tens pieces to help. We did 10 yellow tens, 10 green tens, and kept going back and forth. Each set of 10 tens is 100. We kept making sets of 100 like that until we got to 1,000!*

Group B *We only had green pieces, so we laid out a bunch of tens pieces and then put a sticky note each time we got to the next hundred. We kept doing that until we got to 1,000.*

Group C *We didn't have space anywhere to make such a long line so we made 10 lines with 10 tens in each line. Each line is 100.*



- When groups are done, have them clean up and return to their seats.

Which Hundred Is Closer?

5 Draw students' attention to the line of tens pieces on the board. Have them share their observations with a partner. Then point to the end of each tens piece as students count by 10s to establish that the line is 100 units long.

6 Explain that this is a section of one of the lines of 1,000 they built. Mark and label a space to the left of the line with the number 100. Work with input from the class to mark and label the last unit in the line.

- Draw an arrow below the last unit, and ask students to think-pair-share: *What number should I write here? How do you know?*
- Invite a couple of students to share their ideas with the class and explain their reasoning.

  Students *We said it has to be 200 because the other end is 100, and there are 100 little squares in the line.*

  Yep, 200 because it's like you have 100 and you add another 100. That's 200.

- When there is general consensus, write the number 200 below the arrow at the end of the line.

7 Label a small sticky note with the number 130 and work with input from the class to place it where it belongs along the line.

- Ask them to think-pair-share: *Where would you put this sticky note along our line? Would it belong closer to 100 or 200? Why?*

  Students *Well, 150 is halfway between 100 and 200, so 130 has to come before that.*

  Since 130 is 30 away from 100 and 70 away from 200, it has to be closer to 100 than 200.

- Invite a volunteer to place the sticky note where they think it belongs along the line, draw an arrow from the note to the 130th square, and explain their reasoning.

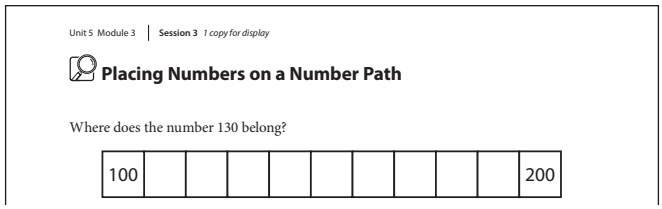
  Student *I knew it would have to be closer to 100 than 200, but I wasn't sure exactly which square until I came up to the board. Then I counted in my head—110, 120, 130. It goes right here.*

- Ask the rest of the class to comment. Do they agree with the placement of the sticky note? Why or why not? If not, where would they put it?

Placing Numbers on Number Paths

8 Work with students to represent the previous problem using a number path.

- Display the Placing Numbers on a Number Path print original, and cover everything except the number path at the top of the sheet.
- Ask students to think-pair-share: *Where does the number 130 belong? How do you know?*
- Invite volunteers to share their solutions and strategies with the class.


Unit 5 Module 3 | Session 3 *1 copy for display*

Placing Numbers on a Number Path

Where does the number 130 belong?

100										200

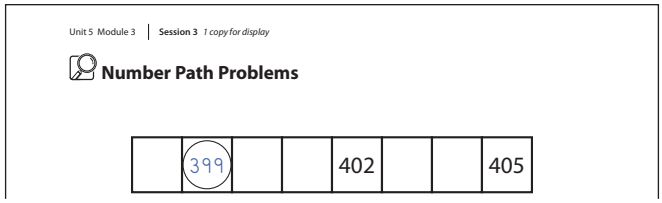
Student *Each space is 10, so hop 3 spaces to get to 130 — 100 … 110, 120, 130.*

9 Reveal the other number paths on the print original, one at a time.

For each number path, have students think-pair-share where the number belongs and how they know.

10 Display the Number Path Problems print original, and solve the problems together as a class.

- Reveal one number path one at a time, leaving the others covered.
- For each one, have students share first in pairs then as a class: *What number belongs in the circle? How do you know?*
- Once a consensus has been reached, write the number in the circle.


Unit 5 Module 3 | Session 3 *1 copy for display*

Number Path Problems

	399			402			405

Student *You can tell each space is 1 more because 405 is 3 spaces past 402, so I counted backward by 1s to figure it out — 402 … 401, 400, 399. It's 399.*

Math Practices in Action

Look for and make use of structure

To make sense of each number path, students must first examine the relationship between the two given numbers to determine whether the sequence is increasing by 1s, 10s, or 100s.

Completing the Student Book Pages

11 Display the first Number Paths page, and ask students to find the page in their student books. Read and review the instructions with the class.

12 When students understand what to do, have them complete both pages.

Work Places

13 When they finish or as time allows, have students get their folders and go to Work Places.

14 Close the session.

- Give students a moment to update their Work Place Logs with the Work Places they visited.
- Have students clean up and put away the Work Place materials and return their Work Place folders.
- Ask students to share something they thought was fun or interesting from the session.

Session 4

The Number Line to 1,000

Summary

The session opens with a warm-up in which students compare a number path and a number line. Then the class works together to build a life-sized number line from 0 to 1,000, using student-suggested numbers and number tags for each multiple of 100. After completing the related student book pages, students spend time at Work Places, and the Numbers from 900 to 1,000 Home Connection is introduced and assigned.

Module 3 Learning Goals

Students learn about place value of 3-digit numbers.

- ☐ Students construct and compare representations of 3-digit numbers.
- ☐ Students explore expanded form as they compare and order 3-digit numbers.
- ☐ Students investigate relationships among 3-digit numbers on a number path.
- ■ **Students investigate relationships among 3-digit numbers on a number line.**
- ☐ Students use their place value understanding to skip-count by 100s from numbers within 1,000.

Materials

Warm-Up Same & Different — Number Path & Number Line	
Copies & Display	**PO P6** Same & Different — Number Path & Number Line
Problems & Investigations Number Lines to 1,000	
Copies & Display	**PO P7–P10** Number Line Tags **SB 65–66** Number Line Problems
Classroom Materials	• cord or heavy string (see Preparation) • retractable clothesline (optional, see Preparation)
Work Places in Use	
4B Measuring in Yards (introduced in Unit 4, Module 2, Session 2) **4C** Measure & Compare (introduced in Unit 4, Module 2, Session 3) **4D** Climb the Beanstalk (introduced in Unit 4, Module 2, Session 4) **5A** Close to 25¢ (introduced in Unit 5, Module 2, Session 2) **5B** Beat You to $1.00 (introduced in Unit 5, Module 2, Session 3) **5C** Three Spins to Win (introduced in Unit 5, Module 2, Session 6)	
Home Connection	
Copies & Display	**HC 115–116** Numbers from 900 to 1,000

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

Vocabulary

**Word Resource Card available*

one thousand (1,000)
number line*
number path*

Preparation

- Cut a piece of cord or heavy string at least 12 feet long to serve as a life-sized number line. Hang the string across the front of the classroom or in another location where all students can see and reach it. Make sure the string is stretched fairly tight and is anchored firmly at both ends. Alternatively, use a retractable clothesline to easily retract the string when it is not in use.
- Print the Number Line Tags print originals on cardstock, then cut along the dotted lines. Fold the pieces along the solid lines to create tags that can be placed along the life-sized number line.

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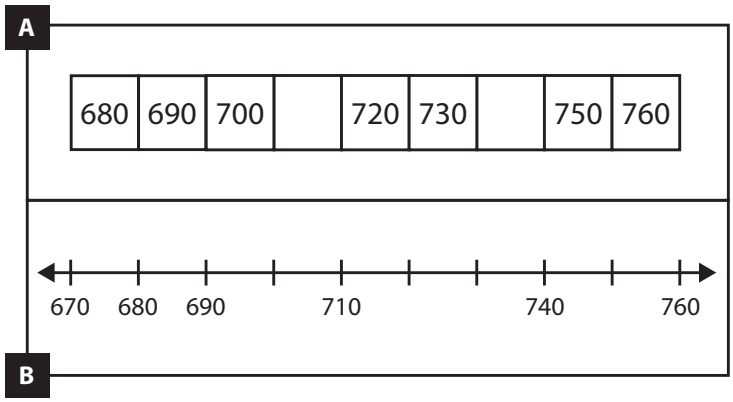
Warm-Up

Same & Different — Number Path & Number Line

1 Display the Same & Different — Number Path & Number Line print original.

- Give students time to think quietly about the images, then ask:
  - » *What do you notice?*
  - » *What is mathematically the same about the two pictures?*
  - » *What is mathematically different?*
- Have students share their ideas, first in pairs then as a class. Encourage them to explain their thinking during the discussion.



Students *Pictures A and B are the same because their last numbers are 760.*

They both show counting by 10s.

They both show the numbers 680, 690, and 760.

The length of each square in picture A is the same as the distance between the marks in picture B.

You can use both of them to help count by 10s, add 10s, or subtract 10s.

Students *The pictures are different because picture A is a number path but picture B is a number line.*

Picture A starts with 680, but picture B starts with 670.

It would be easier to measure the length of something using picture B.

Picture A shows the numbers 700, 720, 730, and 750, but those numbers are missing from picture B.

Picture B shows the numbers 670, 710 and 740, but those numbers are missing from picture A.

The numbers in picture A are in squares, but the numbers in picture B are under those little marks.

Each square in picture A represents 10. But in picture B, you have to make a jump from one mark to the next to represent 10.

Picture B kind of looks like a measuring tape, but picture A doesn't.

Math Practices in Action

Use appropriate tools strategically

A significant development for many second graders is the transition from number paths to number lines. While number paths highlight discrete counting, number lines are continuous and can be used for linear measurement. Understanding the subtle differences will help students choose and use the appropriate tools.

Problems & Investigations

Number Lines to 1,000

Placing Hundreds on the Number Line

1 Call students' attention to the string hanging in the classroom. Hang the number tag for 0 at the far left and the number tag for 1,000 on the far right.

Ask students: *What do you notice? What do you wonder?*

2 Explain that the string is a large number line from 0 to 1,000. Let students know you need their help to place several other numbers along the number line.

- Place the number tag for 800 directly in the center of the number line.
- Ask students to think-pair-share: *Is the number 800 placed correctly on the number line? If so, why do you think so? If not, where does it belong?*
- Invite volunteers to share their thinking with the class.
- Ask students to guide you as you shift the placement of the number tag for 800. Continue shifting the tag closer to 1,000 or closer to 0 until the class has come to a consensus about its placement.

3 Work with the class to place the rest of the hundreds, in this order: 300, 600, 100, 500, 900, 200, 400, 700. For each number:

- Show the number tag to the class, and ask students to think quietly about where it belongs on the number line.
- Choose a student to hang the number tag on the string where they think it belongs and explain their reasoning. Ask the rest of the class to think-pair-share about the placement of the number tag.
- Invite the class to offer suggestions about the placement and explain their reasoning.
- If needed, the student can adjust the placement of the number tags that have already been placed.
- When the class is satisfied with the number tag's placement, repeat this process with the next number.

Equity-Based Practice

Affirming mathematics learners' identities

Anticipate that students might place some of the number tags along the open number line incorrectly and need adjust their placement as more number tags are added. Treat mistakes like these as opportunities for mathematical learning, and encourage students to support each other with tips and suggestions.

Students *The next card is 100!*

It's less than 300, so it belongs between the 0 and the 300.

But put it closer to 0, because it's 100 away from 0 but 200 away from 300.

Wait! I think we need to move the 300 first. Shouldn't it be halfway between 0 and 600?

4 When all the hundreds have been placed and the class is satisfied with their placements, ask students to count aloud by 100s from 0 to 1,000 then backward by 100s from 1,000 to 0 as you point to each number.

Placing Other Numbers on the Number Line

5 Place a blank number tag on the number line halfway between 300 and 400.

- Ask students to think-pair-share: *What number belongs here? How do you know?*
- Invite volunteers to share their ideas and reasoning with the class.
- When the class comes to a consensus, write the number 350 on the card and hang it on the number line.

6 Repeat step 5, this time placing the blank number tag about ¾ of the way between 800 and 900, approximately where 875 belongs.

There will likely be more debate about which number belongs on this card. It's OK if students come up with another number close to 875.

7 Have students complete the other blank number tags and place them along the number line where they belong. For each blank number tag:

- Choose a different student to help.
- Ask them to name a number between 0 and 1,000 not already on the number line.
- Write or have the student write the number on the number tag.
- Ask students to think quietly about where the number belongs on the number line.
- Have them hang the number tag on the number line where they think it belongs. As they do so, invite the class to offer suggestions about the placement and explain their reasoning.
- If needed, the student can adjust the placement of the number tags that have already been placed.
- When the class is satisfied with the number's placement, repeat this process with the next blank number tag.

SUPPORT The open-ended nature of this activity means some students may choose numbers that are more challenging to place accurately, such as 231 or 643. If it's more appropriate for your students, suggest your own numbers, such as 850 or 275. Alternatively, consider asking students to only suggest numbers with a 0 or 5 in the ones place.

CHALLENGE Invite students to find and place a number tag that lies halfway between two numbers. For example, place the 500 and 800 number tags on the number line. Ask: *What number is halfway in between?* (650) You may need to make additional copies of the blank number tags on the Number Line Tags print original.

Note

If possible, keep the number line posted in your classroom for students to reference during the next few weeks. Only the number tags with multiples of 100 need to stay hanging.

Completing the Student Book Pages

8 Display the first Number Line Problems page, and ask students to find the page in their student books. Read and review the instructions with the class.

9 When students understand what to do, have them complete both pages.

Digital Resources

To view a digital version of the problem in step 5, enter share code 4AS8-MSJR in the Number Line app. Add custom ticks to the number line to extend the activity.

Apps are available at apps.mathlearningcenter.org.

Work Places

10 When they finish or as time allows, have students get their folders and go to Work Places.

11 Close the session.

- Give students a moment to update their Work Place Logs with the Work Places they visited.
- Have students clean up and put away the Work Place materials and return their Work Place folders.
- Write the number 120 on the board. Invite students to count aloud by 100s from 120 to 920, and record each number on the board (220, 320, 420, and so on). Then ask students to count backward from 920 to 120 as you point to each number in the sequence.

Home Connection

12 Introduce and assign the Numbers from 900 to 1,000 Connection, which provides more practice with the following skills:

- Count within 1,000
- Compare two 3-digit numbers

Session 5

Unit 5 Assessment & Jump-a-Hundred: Introducing Work Place 5D

Summary

The session opens with a warm-up that focuses on using a number line to skip-count by 100s forward or backward from any 3-digit number. Then the teacher introduces a new Work Place game called Jump-a-Hundred, which focuses on the same skill. Then students take the Unit 5 Assessment and go to Work Places as they finish.

Module 3 Learning Goals

Students learn about place value of 3-digit numbers.

- ☐ Students construct and compare representations of 3-digit numbers.
- ☐ Students explore expanded form as they compare and order 3-digit numbers.
- ☐ Students investigate relationships among 3-digit numbers on a number path.
- ☐ Students investigate relationships among 3-digit numbers on a number line.
- ■ **Students use their place value understanding to skip-count by 100s from numbers within 1,000.**

Materials

Warm-Up Skip-Counting by 100s Off-Decade	
Problems & Investigations Introducing Work Place 5D Jump-a-Hundred	
Copies & Display	**PO P11** Work Place Guide 5D Jump-a-Hundred **PO P12** Work Place Instructions 5D Jump-a-Hundred **PO P13** 5D Jump-a-Hundred record sheet **PO P14** 5D Jump-a-Hundred Number Lines
Kit Materials	die numbered 1–6
Classroom Materials	• colored pencils or pens in red and blue (1 of each color) • real or plastic penny • life-sized number line from Session 4 (optional)
Assessment Unit 5 Assessment	
Copies & Display	**P15–P17** Unit 5 Assessment
Kit Materials	• money value pieces • large base ten number pieces
Work Places in Use	
4C Measure & Compare (introduced in Unit 4, Module 2, Session 3) **4D** Climb the Beanstalk (introduced in Unit 4, Module 2, Session 4) **5A** Close to 25¢ (introduced in Unit 5, Module 2, Session 2) **5B** Beat You to $1.00 (introduced in Unit 5, Module 2, Session 3) **5C** Three Spins to Win (introduced in Unit 5, Module 2, Session 6) **5D** Jump-a-Hundred (introduced in this session)	

PO – Print Original, **SB** – Student Book, **HC** – Home Connection

Vocabulary

**Word Resource Card available*

compare*
digit*
equal*
greater than*
hundreds*
less than*
ones*
place value*
tens*

Preparation

- In today's session, you'll introduce Work Place 5D Jump-a-Hundred, which replaces 4B Measuring in Yards. Read the Work Place Guide and Instructions, including suggestions for differentiating the activity to meet students' needs. Assemble the materials listed on the Guide, and place them in the bin. If you'd like, print copies of the Work Place sentence frames from the Bridges Educator Site and place them in the bin.

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- Draw a number line on the board, then draw a tick mark labeled *0* on the left side of the line.
- Place small containers of base ten number pieces and money value pieces on each table where students can access them easily during the assessment.

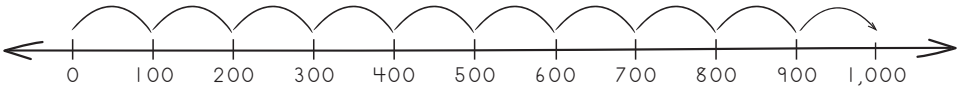
Warm-Up

Skip-Counting by 100s Off-Decade

1 Draw students' attention to the number line on the board. Explain that they will use it to practice counting by 100s, starting at different numbers.

Understanding the concept of counting by 100s from starting points that are not multiples of 100 is key to playing Jump-a-Hundred. Continue with the warm-up until students are comfortable with the idea that when counting by 100s, the quantities of 10s and 1s do not change.

- Point to the number line on the board, and ask the students to count by 100s to 1,000 as you draw jumps along the number line.
- When you reach 1,000, work with students' input to label the tick marks with the numbers they said.

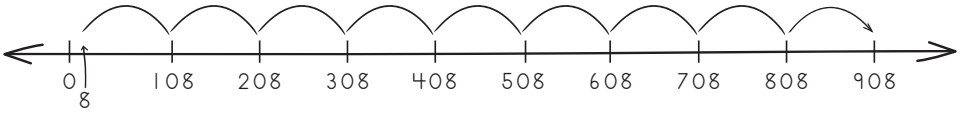


2 Erase the number line, and draw another number line with a tick mark labeled 0 on the left side. Make a mark a short distance past the 0, and label it 8.

Ask students whether it is possible to count by 100s starting from 8 instead of 0. Give them a minute to share their ideas with a partner. Then call on volunteers to share their thinking with the class.

3 After some discussion, ask students to add 100 to 8 as you draw a jump on the number line, and ask them to name the total (108). Then add 100s one by one, marking and labeling the number line each time.

If it does not arise from students, explain that adding or subtracting 100 from a number over and over is another way to count by 100s.



SUPPORT Verify the results on the number line using a physical tool, such as base ten number pieces. (For example, you might set out 8 ones pieces, then add a hundreds piece and have students find the total, then add another hundreds piece and have students find the total — students will discover that the quantity of hundreds is the only thing that is changing from one number to the next.)

4 Erase the number line again, and draw a new one with a tick mark labeled 1,000 on the right side. Make a mark a short distance before the 1,000, and label it 983.

- Ask students where they will land if they count backward by 100s from 983 to get as close to 0 as they can.

- Give students a moment to discuss ideas, then have them slowly count backward by 100s from 983 to 83 as you draw and label the jumps on the number line.

5 Repeat these steps as needed, erasing the number line each time, starting with a new number between 0 and 100 or between 900 and 1,000, and counting by 100s forward or backward.

6 If you don't have the life-sized number line from the previous session still posted, erase the number line and work with students to draw and label one more number line marked with multiples of 100, starting from 0 and going through 1,000.

Leave this number line on the board for students' reference as you teach them how to play Jump-a-Hundred.

Problems & Investigations

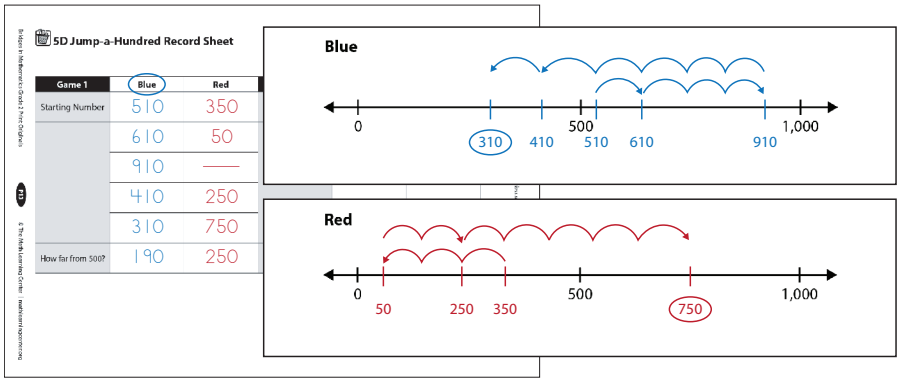
Introducing Work Place 5D Jump-a-Hundred

7 Display the Jump-a-Hundred record sheet, and briefly summarize the game.

Each player chooses a 3-digit starting number and marks it on their number line. The starting number can be any number other than 500. Players then take turns rolling a die numbered 1–6 and flipping a coin to move either forward or backward by 100s. The die tells how many jumps of 100 to make, and the coin tells whether to jump forward (heads) or backward (tails). After both players have had four turns, each player circles their final number and records how far from 500 they are. The player who is closer to 500 wins the game.

8 Play one or two games of Jump-a-Hundred against the class, using the Work Place Instructions as needed.

- Pose questions like these to promote discussion of counting by 100s while you play:
  - » *What do you see? What do you notice?*
  - » *Which digits change after you make a series of jumps? Which digits stay the same?*
  - » *How can we determine a winner?*



Students *You landed on 750 on your last turn. That's 250 away from 500, because you have to make a jump of 200 and then 50 more.*

We landed on 310. It's 90 up to 400, and then 100 more to 500.

We're only 190 away from 500, but you're 250 away. We won!

Math Practices in Action

Look for and express regularity in repeated reasoning

Each turn in Jump-a-Hundred requires the player to jump forward or backward by a multiple of 100. This deepens students' understanding of place value by highlighting the idea that adding or subtracting 100s affects the digit in hundreds place but does not affect the digits in the tens place or ones place.

- While playing the game:
  - » Work with students to represent each turn using the 5A Jump-a-Hundred Number Lines print original.
  - » When jumping by 100s on the number line, it's OK to make a jump for each 100 or (if students are comfortable with it) make one big jump to represent the total amount added or subtracted.
  - » Look for an opportunity to model what happens when you can't complete a move. For example, if you are on 189 and roll a 3 and tails, you cannot complete your move and must stay at 189. If this situation does not occur during the game, ask students to consider a similar situation.
  - » Ask students for suggestions about which tools they might use to determine the winner at the end of each game.

Assessment

Unit 5 Assessment

9 Display the Unit 5 Assessment, and distribute a copy to each student.

- Model labeling the first page of the assessment with your name and the date.
- Give students a minute to quietly look over the assessment.

10 Read and review the problems with the class, clarifying as needed.

As you review each problem with the class, let them know:

- » *You may use base ten number pieces or money value pieces to help solve any of the problems on the assessment.*
- » *If the problem asks to show your thinking, be sure to use numbers, words, or pictures to describe your strategy.*
- » *If you have questions about any of the problems or need to have them read again, raise your hand and I will help you.*

11 Give students the rest of the session to work on the assessment independently.

- Circulate as students work to provide help as needed. As you observe, look for evidence of the thinking, tools, and solution strategies students are using to solve the problems.
- If there are students who are unable to complete the assessment by the end of the session, give them time to finish during seatwork or Work Places in the next session.

Work Places

12 As students finish and turn in their assessment, have them get their folders and find a Work Place to go to quietly.

13 Close the session.

Have students clean up and put away the Work Place bins.

14 Ask students to name different ways to represent the number 1,000.

- Write or draw students' suggestions on the board.
- How many different ways to represent 1,000 can they come up with?

Grade 2 – Unit 5 – Module 3
Teachers Guide Sample

bridges® in mathematics

Pennies in a Coin Jar

Hint: It takes 600 pennies to fill half of the jar.

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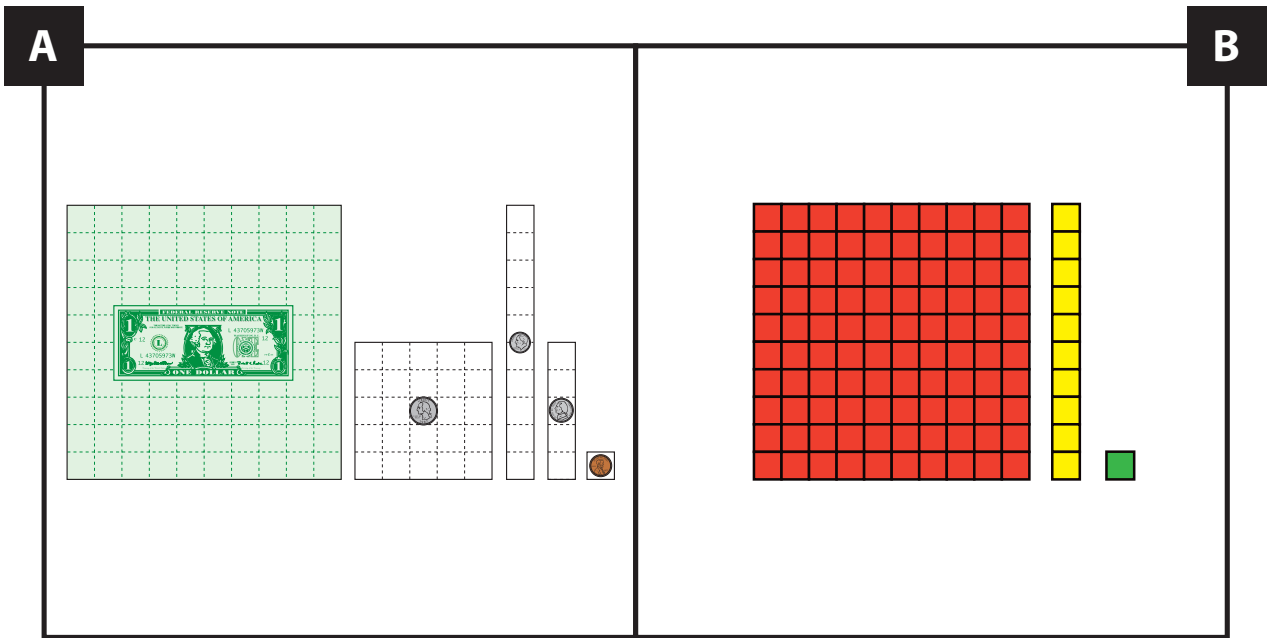
Same & Different — Kinds of Pieces

What do you notice?

What is mathematically the same about the two pictures?

What is different?



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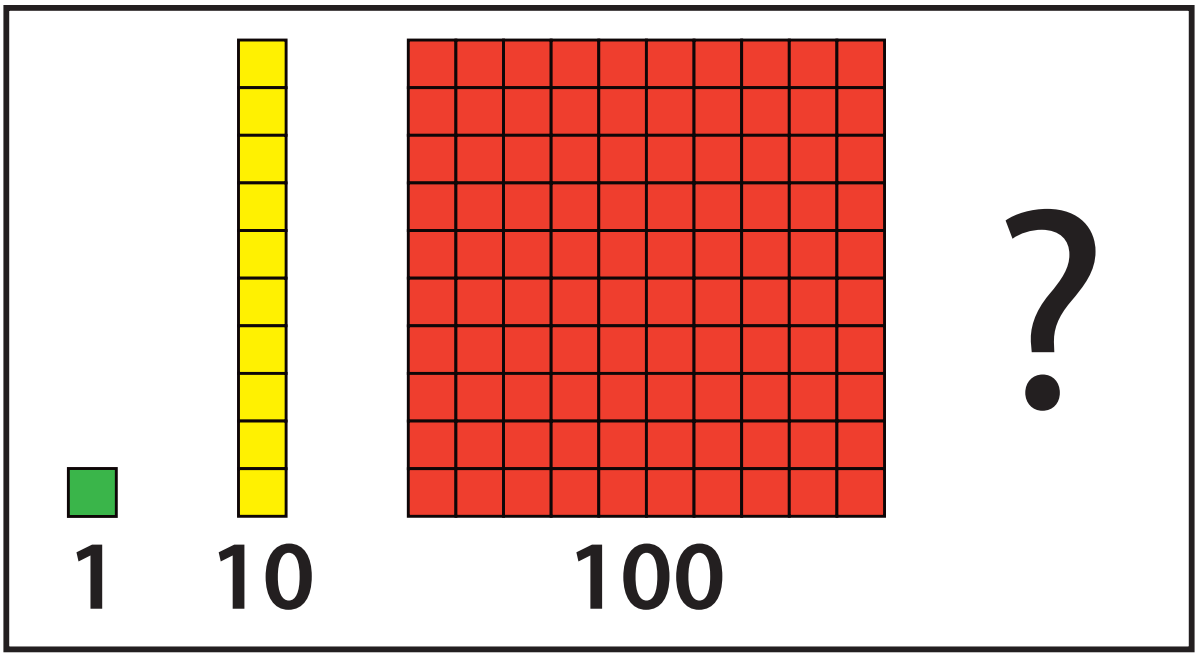
What Comes Next?

What do you notice?

What do you wonder?

What comes next?



Describe what the next picture and number look like. How do you know?

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Placing Numbers on a Number Path

Where does the number 130 belong?

100										200

Where does the number 590 belong?

510									600

Where does the number 800 belong?

	300							1,000

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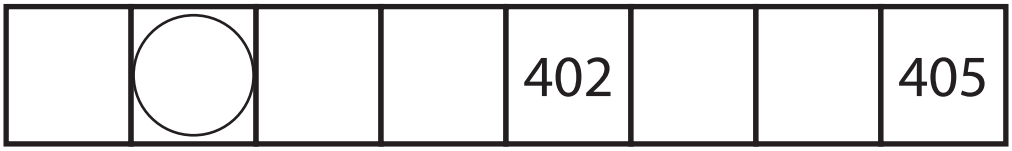
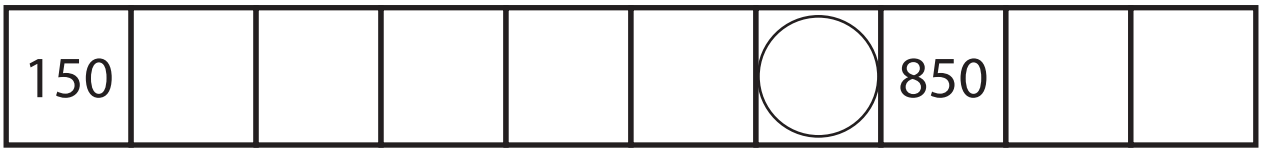
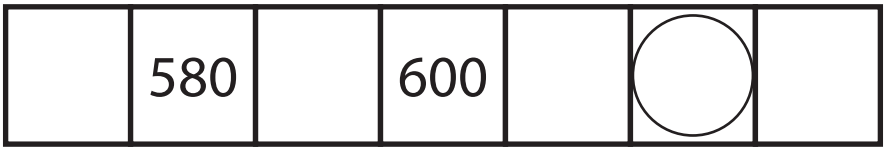
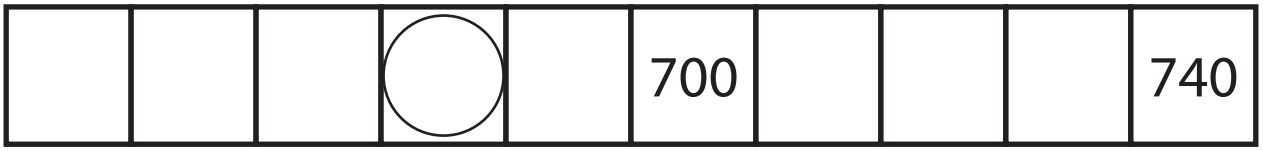
Number Path Problems









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Same & Different — Number Path & Number Line

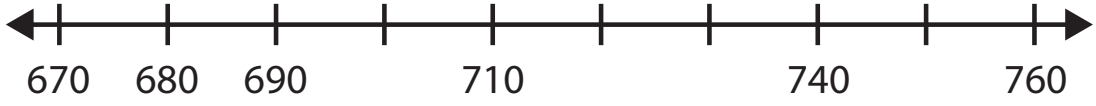
What do you notice?

What is mathematically the same about the two pictures?

What is different?

A

680	690	700		720	730		750	760



B

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Number Line Tags page 1 of 4

0

100

200

300

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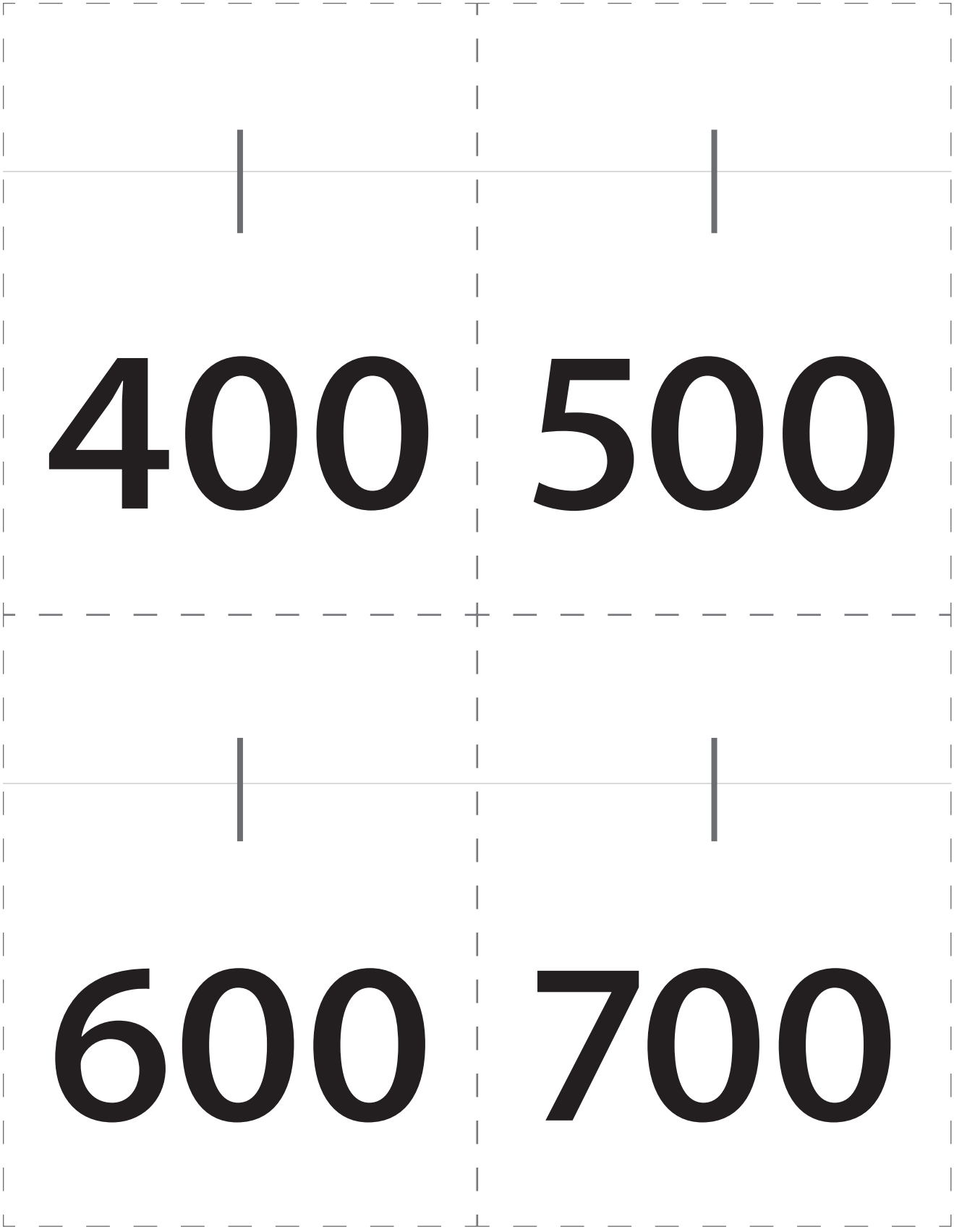
Number Line Tags page 2 of 4



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Number Line Tags page 3 of 4

800

900

1,000

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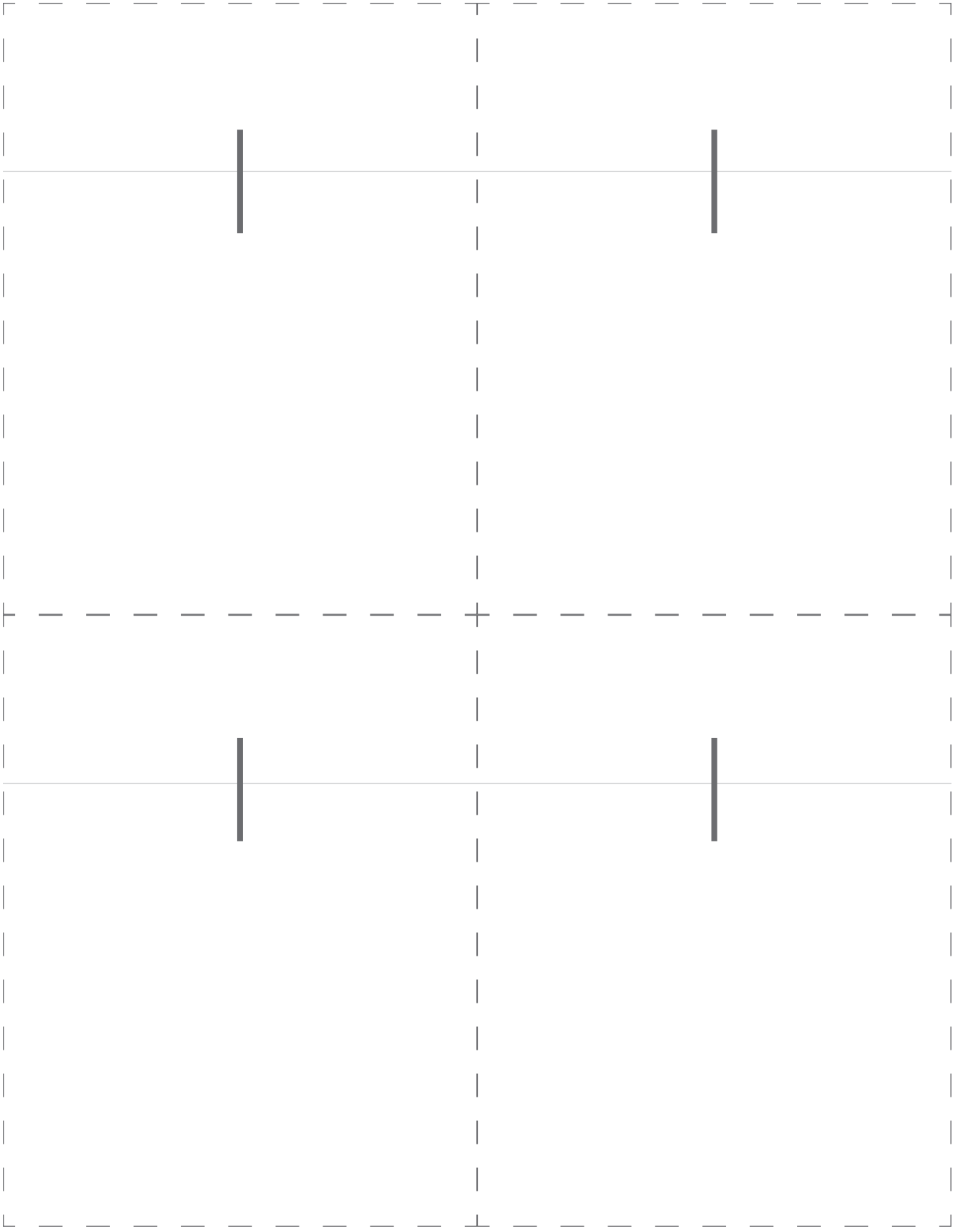
Number Line Tags page 4 of 4



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Work Place Guide 5D Jump-a-Hundred

Summary

Each player chooses a 3-digit starting number and marks it on their number line. The starting number can be any number other than 500. Players then take turns rolling a die numbered 1–6 and flipping a coin to move either forward or backward by 100s. The die tells how many jumps of 100 to make, and the coin tells whether to jump forward (heads) or backward (tails). After both players have had four turns, each player circles their final number and records how far from 500 they are. The player who is closer to 500 wins the game.

Skills & Concepts

- Skip-count by 100s
- Mentally add 100 to a number 100–900 or subtract 100 from a number 100–900
- Look for and express regularity in repeated reasoning

Materials

Copies	Kit Materials	Classroom Materials
PO P11 Work Place Guide 5D Jump-a-Hundred **PO P12** Work Place Instructions 5D Jump-a-Hundred **PO P13** 5D Jump-a-Hundred record sheet **PO P14** 5D Jump-a-Hundred Number Lines	• 3 dice numbered 1–6 • large base ten number pieces (several sets; optional, for support)	• colored pencils in red and blue (3 of each color) • real or plastic pennies (3) • masking tape (optional, for support)

Assessment & Differentiation

If you see that …	Differentiate	Example
Students could benefit from support when counting by 100s from numbers that are not multiples of 100	SUPPORT Have students build their starting number using base ten number pieces. Then have students add or take away mats based on their roll. After a few rolls, students may begin to see that the number of strips and units does not change; only the number of mats changes with each roll.	
Students are very comfortable playing this game and would benefit from a challenge	CHALLENGE Invite students to investigate the pros and cons of using various starting numbers. Is it to a player's advantage to start as close as 500 as possible? Or is it better to start midway between 0 and 500, or midway between 500 and 1,000? Does the starting position make any difference? If so, why? If not, why?	Have students create a chart to keep track of the starting numbers and winner of each game played. Keep the chart near the Work Place area for as long as Jump-a-Hundred is in use. Then have students look at the information on the chart to see whether it shows any relationship between the starting numbers and how often the player won the game.
Multilingual Learners		
Consider labeling the front and back of each penny with a tiny piece of masking tape to clarify the direction it represents. For example, you might label the heads side *F* with an arrow pointing to the right and label the tails side *B* with an arrow pointing to the left.		

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Work Place Instructions 5D Jump-a-Hundred

Object of the Game

Jump forward and backward by 100s on a number line. Roll a die and flip a coin to determine how far to jump either forward or backward. After 4 turns, the player who is closer to 500 wins.

Get Ready to Play

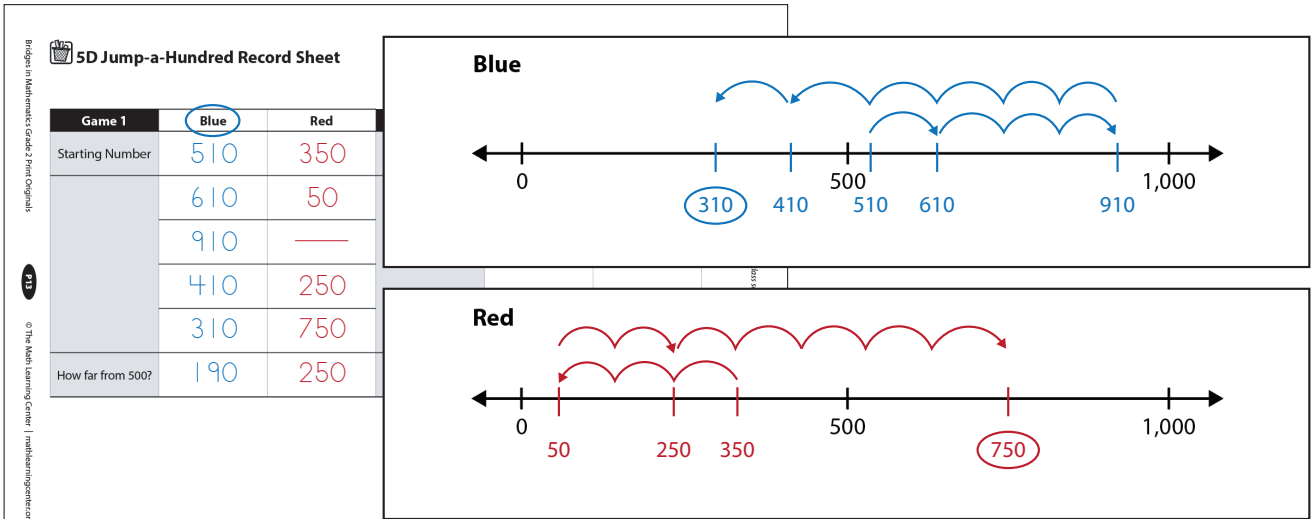
- Each player needs a **red or blue pencil** and a **copy of Jump-a-Hundred Number Lines**.
- Players share a **coin**, a **die numbered 1–6**, and a **record sheet**.
- Players pick their color (red or blue), choose a starting number, and write their starting numbers on their number lines and the record sheet under Game 1. The starting number can be any 3-digit number other than 500.
- Flip the coin to decide who will go first.

On Your Turn

1. Roll the die and flip the coin. The die tells how many 100s to jump, and the coin tells whether to jump forward (heads) or backward (tails).
2. On your number line, record the jumps and label the number you land on. Record the results in the column for your color on the record sheet.
3. If your move would take you off of the number line, you lose that turn.

Ending the Game

- After 4 turns each, players work together to figure out how far they each are from 500. The player who is closer to 500 wins.
- Play a second game using the right side of the table and another pair of number lines.



5D Jump-a-Hundred Record Sheet

Game 1	Blue	Red
Starting Number	510	350
	610	50
	910	——
	410	250
	310	750
How far from 500?	190	250

NAME | DATE

5D Jump-a-Hundred Record Sheet

Game 1	Blue	Red	Game 2	Blue	Red
Starting Number			Starting Number		
How far from 500?			How far from 500?		

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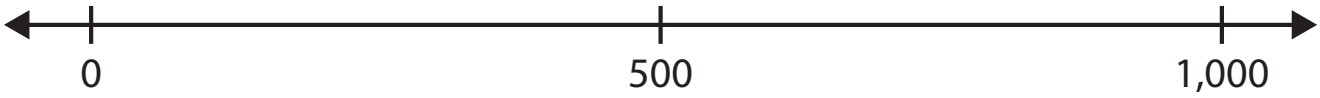
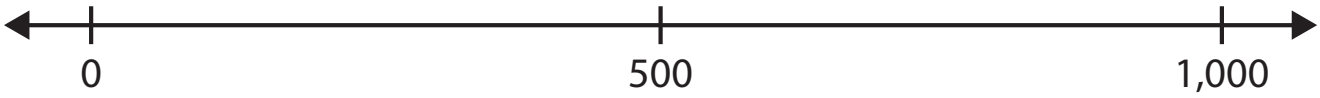
NAME | **DATE**

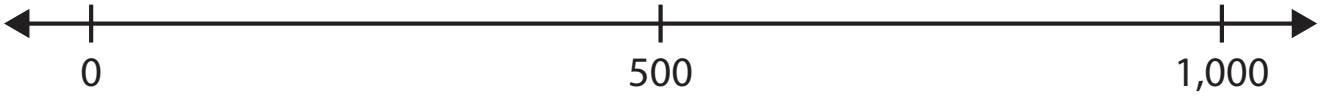
5D Jump-a-Hundred Number Lines

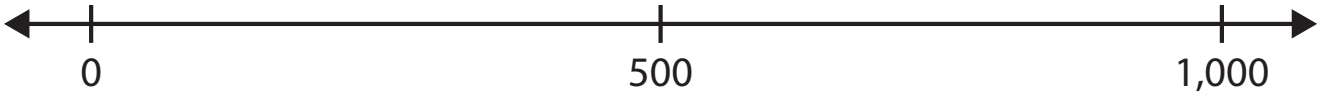
Blue





Red





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Unit 5 Assessment page 1 of 3

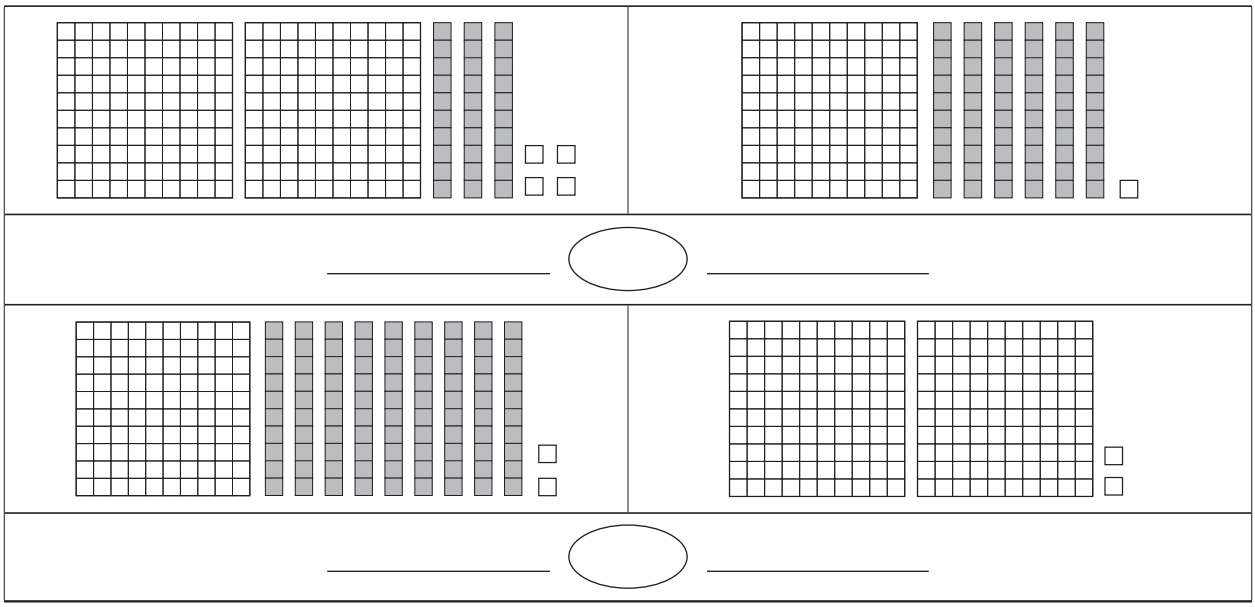
1 Count by 5s, 10s, or 100s to fill in the missing numbers.

a 70, _____, 80, _____, 90, 95, _____, _____

b 542, 552, _____, 572, _____, _____, 602, _____

c _____, 108, 208,_____, _____, 508

2 Count the base ten number pieces, and write the total value under each set. Then write >, =, or < in the space to compare the two sets.



3 Write the number or the expanded form to complete the table.

Number	Expanded Form
438	_____
329	_____
_____	900 + 10 + 3
_____	800 + 5

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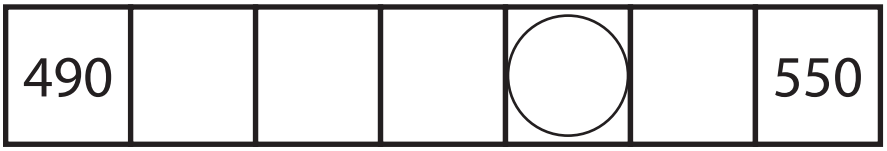
NAME | **DATE**

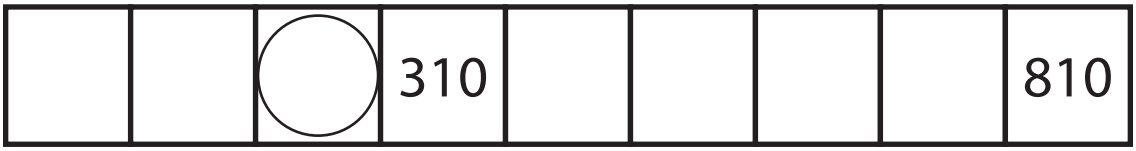
Unit 5 Assessment page 2 of 3

4 Write the number that belongs in each circle. Show your thinking.

a



b



5 Write the value of each digit.

a In 678, what is the value of the digit in the hundreds place? _____

b In 451, what is the value of the digit in the tens place? _____

6 Solve the following combinations.

6 + 7 = _____ 9 + 8 = _____ 8 + 6 = _____

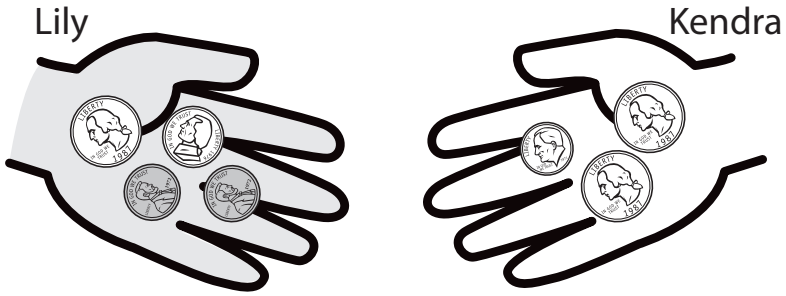
5	4	15	13	12
+ 9	+ 8	− 9	− 7	− 8

(continued on next page)

NAME | **DATE**

Unit 5 Assessment page 3 of 3

7 Lily and Kendra are counting coins from donations to their class's coin jar. Answer the questions about their coins. Remember to use the ¢ or $ sign.



a How much money does Lily have in her hand? _____

b How much money does Kendra have in her hand? _____

c How much money did they count in all? Show your thinking.

d How much more do they need to have $1.00? Show your thinking.

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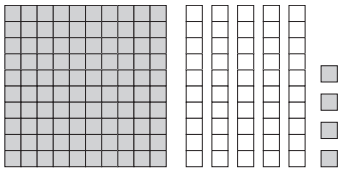
NAME | DATE

Hundreds, Tens & Ones page 1 of 2

1 Look at the base ten number pieces. Write the amount in expanded form. Then write the number.

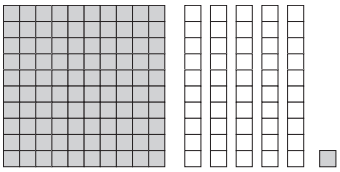
ex



_____

_____

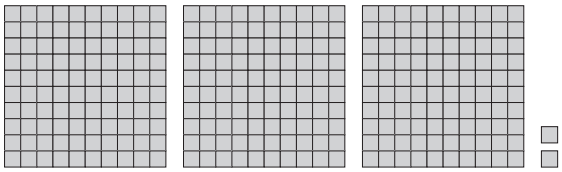
a



_____

_____

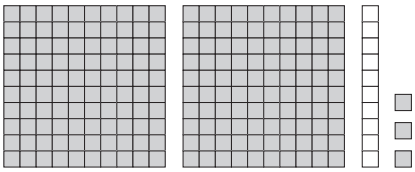
b



_____

_____

c



_____

_____

2 Write the value of each digit.

ex In 532, what is the value of the digit in the tens place? 30

a In 207, what is the value of the digit in the hundreds place? _____

b In 924, what is the value of the digit in the ones place? _____

c In 658, what is the value of the digit in the tens place? _____

(continued on next page)

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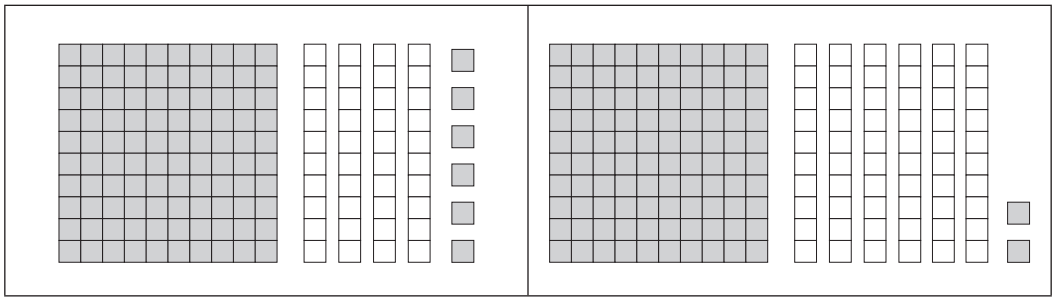
NAME | DATE

Hundreds, Tens & Ones page 2 of 2

3 Count the base ten number pieces, and write the number under each set. Then write >, =, or < to compare the two sets.



_____ ◯ _____

4 Write the number or the expanded form to complete the table.

Number	Expanded Form
ex 365	300 + 60 + 5
_____	900 + 20 + 7
329	_____
913	_____
_____	800 + 5

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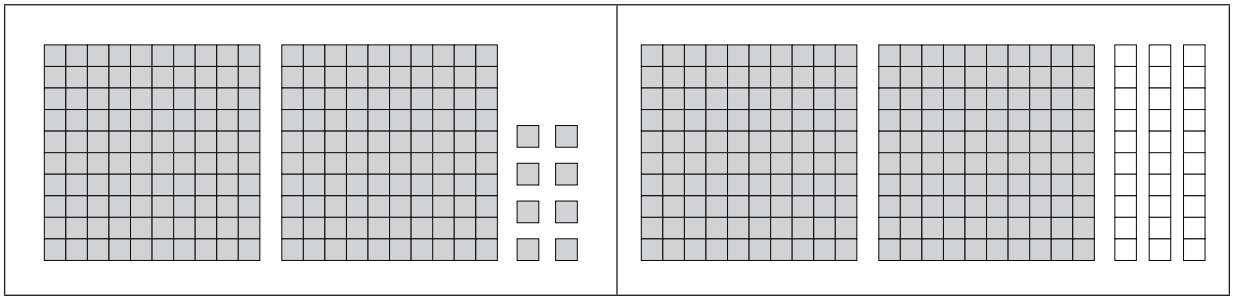
Comparing & Ordering Three-Digit Numbers page 1 of 2

1 Draw a picture of the base ten number pieces that represent this number.

361

2 Count the base ten number pieces, and write the number under each set. Then write >, =, or < to compare number pieces.



_____ ( ) _____

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NAME | DATE

Comparing & Ordering Three-Digit Numbers page 2 of 2

3 Read these numbers. Then write them on the lines in order from least to greatest.

572	**389**	**518**	**97**	**703**

_____, _____, _____, _____, _____

least greatest

4 Read these numbers. Then write them on the lines in order from greatest to least.

391	**190**	**803**	**309**	**622**

_____, _____, _____, _____, _____

greatest least

5 Write the number that matches each clue.

a 10 more than 695 _____

b 100 less than 386 _____

c 10 less than 407 _____

d 100 more than 519 _____

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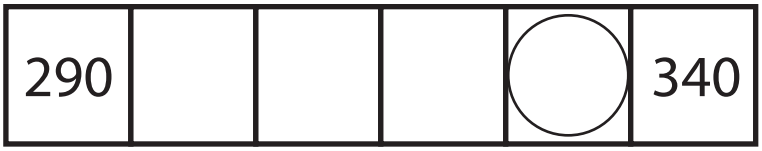
NAME | DATE

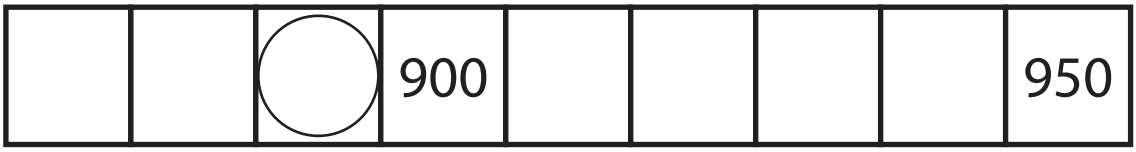
Number Paths page 1 of 2

Write the number that belongs in each circle.

1



2



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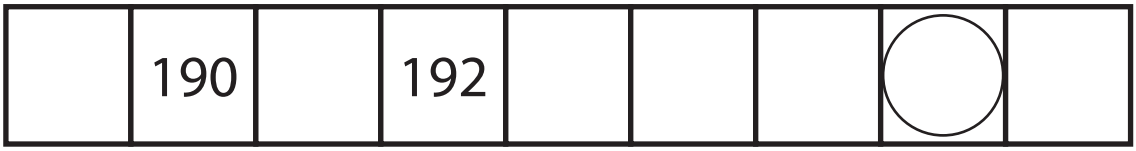
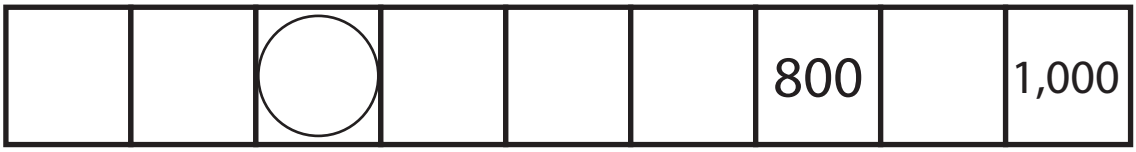


4



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Number Paths page 2 of 2

5 Use this number path to answer the questions.

94									103

a If you added 10 more spaces to the number path after 103, what number would go in the last space? _____

b If you added 10 more spaces to the number path before 94, what number would go in the first space? _____

6 **CHALLENGE** If you added 225 more spaces to this number path after 747, would you reach 1,000? If not, how many more spaces would you need to get to 1,000? Show your thinking.

741						747

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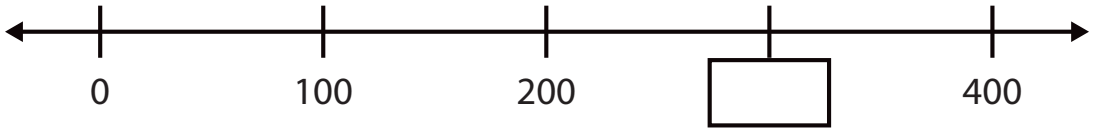
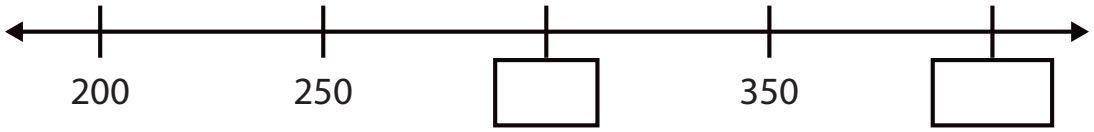
Number Line Problems page 1 of 2

1 Fill in the missing numbers on the number lines.

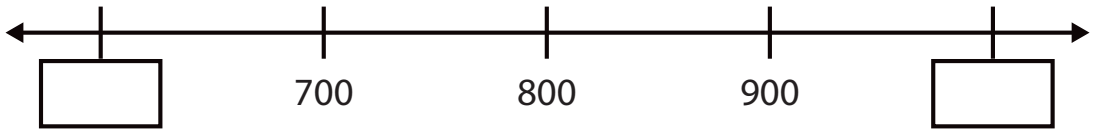
a



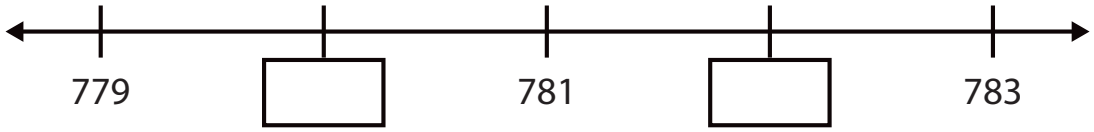
b



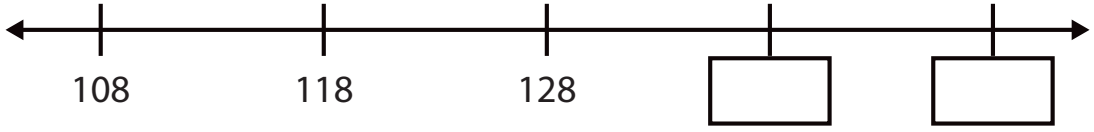
c



d



e



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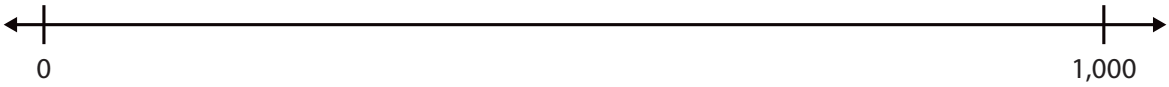
Number Line Problems page 2 of 2

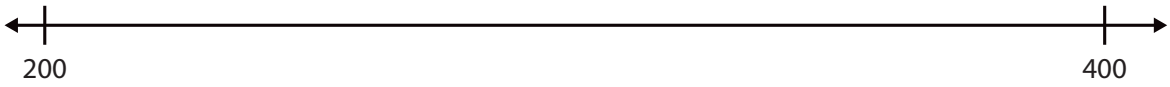
2 Mark and label the number line with these numbers.

500	800	300



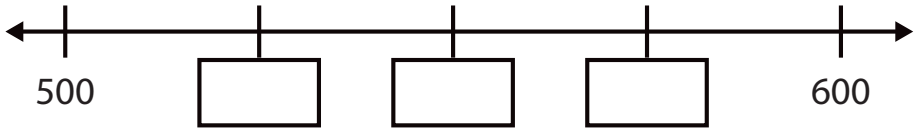
3 Mark and label the number line with these numbers.

300	250	350

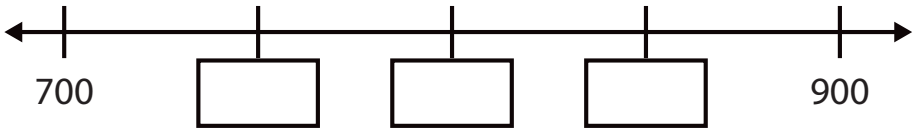


4 **CHALLENGE** Fill in the missing numbers on these number lines.

a



b



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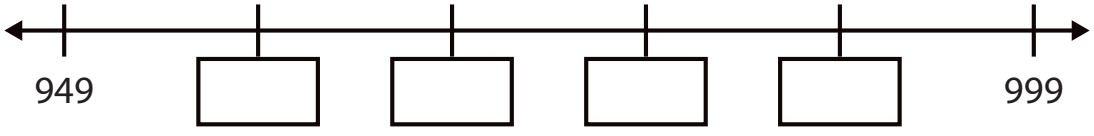

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Money & Time page 1 of 2

If you have an amount of money less than a dollar, you can write the amount with a cent sign or a dollar sign.

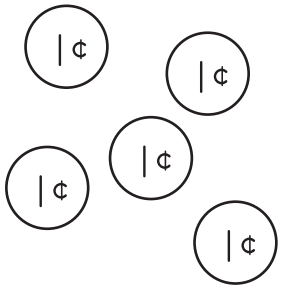
1 Count the money in each row, and write it in 2 different ways.

ex  23¢ or $0.23

a  _____ or _____

b  _____ or _____

2 Write the name of each coin. Show how to write it with a cent sign or a dollar sign. Then draw a different way to make the same amount of money with more than 1 coin.

	ex nickel	**a** _____	**b** _____
Coin name:			
Written 2 ways:	5¢		
	$0.05		
Different way to make it:			

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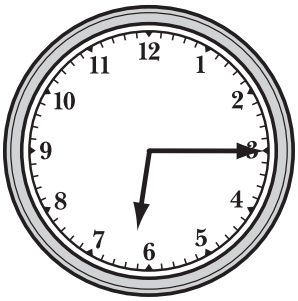
Money & Time page 2 of 2

3 Solve these coin problems. You can use quarters, dimes, nickels, and pennies.

a Draw 56¢ using 4 coins.	**b** Draw 56¢ using 5 coins.

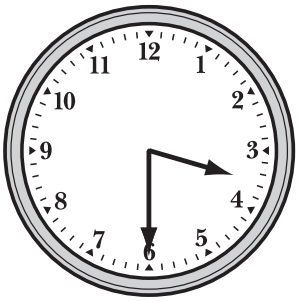
4 Fill in the bubble next to the correct time.

a



- ◯ 6:15
- ◯ 6:45

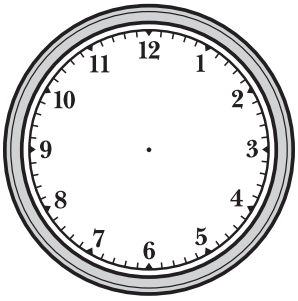
b



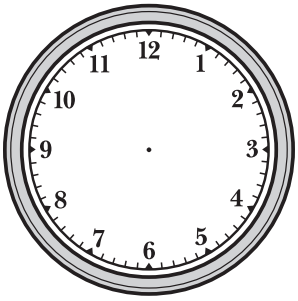
- ◯ 4:30
- ◯ 3:30

5 Draw 2 hands on the clock to show the time.

a 6:45



b 7:15



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Numbers from 900 to 1,000 page 1 of 2

1 Fill in the missing numbers on the chart. Use the patterns you know to help.

901		903	904	905	906	907	908	909	910
911	912	913	914	915	916	917	918	919	920
921	922	923	924	925			928	929	930
931	932	933		935	936	937	938	939	940
941	942	943	944		946	947	948	949	950
951	952	953	954	955		957	958	959	960
961	962	963	964	965	966	967	968		970
	972	973	974	975	976	977	978	979	980
981	982	983	984	985	986	987	988	989	
991	992	993	994	995		997	998	999	1,000

2 Describe or show at least 3 different patterns you see on the chart.

(continued on next page)

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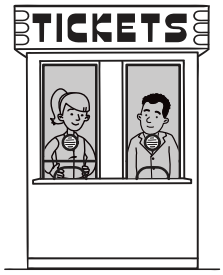
Numbers from 900 to 1,000 page 2 of 2

3 The carnival in our town started last week. This chart shows how many tickets they sold each day.

Day	Number of Tickets
Saturday	978 tickets
Sunday	995 tickets
Monday	932 tickets
Tuesday	905 tickets
Wednesday	937 tickets



Put the number of tickets they sold each day in order from least to greatest.

_____ , _____ , _____ , _____ , _____

least greatest

4 The people who came to the carnival bought 909 hot dogs on Saturday, 990 hot dogs on Sunday, 943 hot dogs on Monday, and 934 hot dogs on Tuesday.

a Which is greater, 909 or 990? _____

b How do you know?

c Which is less, 943 or 934? _____

d How do you know?

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