CLAREZA ACADEMY

Grade 2 Math

Free sample: Unit 1, Lessons 1 to 8

These are 8 lessons from *Clareza Grade 2: The Full Year: Math, Reading, Science and Social Studies*, a second grade year a parent runs at the kitchen table. Each lesson is a short script for you, a page to read together, and a practice sheet you may copy for your household. Answers are at the back.

Clareza Grade 2: The Full Year: Math, Reading, Science and Social Studies. Sample edition.

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Clareza is a secular curriculum. Standards references: Common Core State Standards and the Next Generation Science Standards.



MATH · UNIT 1

Place Value to 1000: Bundles of Ten

This unit teaches that any number is just groups of ten, bundled up. Your child moves from tens-and-ones with two-digit numbers into bundling ten tens into a hundred, then reading, writing, and comparing three-digit numbers. Whatever blocks or drawings you use here become the mental picture for every number they write for the rest of the year.

In this unit

1. Make a ten
2. Make a hundred
3. Reading big numbers
4. Same number, new groups
5. Greater than and less than
6. Skip counting
7. Build a new number
8. Counting real things

MATH · UNIT 1 · LESSON 1

Make a ten



Goal: Given a pile of up to 9 loose ones, bundle them into a group of ten when possible and state how many tens and ones remain.

About 14 minutes

Teach it FOR THE PARENT

1. **Say:** Look at these 10 pennies: ☐☐☐☐☐☐☐☐☐☐ Guess what! I can trade them for one shiny dime.
   Look for: Child watches and notices 10 small things become 1 bigger thing.
2. **Say:** Ten ones make one bundle. We call that bundle a ten. It is still the same amount!
   Look for: Child repeats or nods that ten ones equal one ten.
3. **Say:** Imagine 10 blocks: 🟦🟦🟦🟦🟦🟦🟦🟦🟦🟦 Let's count them. One, two... ten! Now imagine I snap them together into one ten-stick.
   Look for: Child counts along and sees the bundle form from exactly 10 ones.
4. **Say:** Now here are 6 blocks: 🟦🟦🟦🟦🟦🟦 Count with me. Not enough for a bundle! We keep 0 tens and 6 ones.
   Look for: Child recognizes fewer than 10 stays ungrouped.
5. **Say:** Your turn! Here are 8 apples: 🍎🍎🍎🍎🍎🍎🍎🍎 Are there enough to make a bundle of ten?
   Look for: Child correctly says no bundle, 0 tens and 8 ones.
6. **Say:** Great counting! Now you'll try some on your own. Count the ones. Then decide: bundle or not?
   Look for: Child is ready to apply the bundle rule to new piles.

If they get stuck

- *The digit with more digits in it or written first is always the bigger number, without checking place value.*
  Build both numbers with blocks side by side and compare hundreds first, then tens, then ones, out loud.
- *A number like 37 is just 'thirty-seven,' one whole thing, not 3 tens and 7 ones that can be split apart.*
  Have the student physically bundle 10 loose ones into a ten-stick before writing any digit, every time.
- *Regrouping ones into a ten changes the total amount.*
  Count the loose ones aloud, bundle, then count again by tens to show the total is unchanged.

Read together FOR THE STUDENT

Ten loose ones can turn into one bundle. It is called a ten. Think of ten pennies. Trade them for one dime. The dime is worth the same. It just looks like one thing now. Count 9 or fewer ones. You cannot make a bundle yet.

Going further: When you have 10 ones, bundle them into 1 ten. This does not change the amount. It just groups it. If you have fewer than 10 ones, they stay as ones. Count your loose ones first. Then check: is there a full group of ten hiding inside?

Watch it work

You have 10 loose ones. Can you bundle them?

1. Count the ones. There are 10.
2. 10 ones make exactly 1 ten.
3. Bundle them. Now you have 1 ten and 0 ones left.

The idea: Ten ones always trade evenly for one ten.

You have 7 loose ones. Can you bundle them?

1. Count the ones. There are 7.
2. 7 is fewer than 10.
3. No bundle yet. You have 0 tens and 7 ones.

The idea: Fewer than 10 ones cannot form a ten.

Practice: Make a ten

1. Count the apples. Can you bundle them into a ten?



10 apples

(A) Yes, 1 ten and 0 ones (B) No, keep them as ones

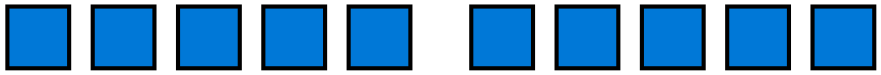
2. Count the stars. Can you bundle them into a ten?



5 stars

(A) Yes, 1 ten and 0 ones (B) No, 0 tens and 5 ones

3. Count the cubes. How many tens and ones?



10 cubes

(A) 1 ten and 0 ones (B) 1 ten and 1 one (C) 0 tens and 10 ones

4. Count the buttons. How many tens and ones?



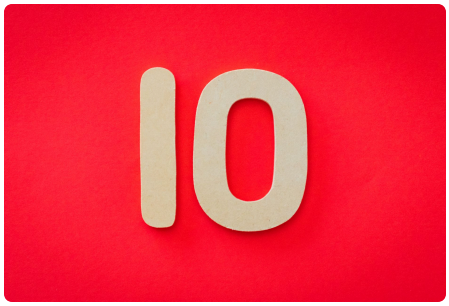
9 buttons

(A) 1 ten and 0 ones (B) 0 tens and 9 ones

Make a hundred

Goal: Given ten bundled tens shown as blocks, name the group as one hundred and state how many ones it equals.

About 12 minutes



Teach it FOR THE PARENT

1. **Say:** Remember bundling 10 ones into 1 ten? Today we bundle tens!
   Look for: Child recalls the ten-ones-to-one-ten bundling idea from earlier lessons.
2. **Say:** Look at 10 ten-sticks. Push them together. That new group is called one hundred.
   Look for: Child watches the bundling action and repeats the name 'one hundred'.
3. **Say:** One hundred is a big group. It is the same as 100 ones.
   Look for: Child connects the name 'one hundred' to the value 100 ones.
4. **Say:** Count with me. 1 ten, 2 tens, all the way to 10 tens. What do we call 10 tens?
   Look for: Child counts ten groups of ten and answers 'one hundred'.
5. **Say:** Imagine 10 new ten-sticks pushed together. What do we call this whole group?
   Look for: Child circles 'one hundred' for a fresh set of 10 ten-sticks.
6. **Say:** You know 10 tens make 1 hundred. Let's practice spotting hundreds!
   Look for: Child is ready to move into independent practice items.

If they get stuck

- *The digit with more digits in it or written first is always the bigger number, without checking place value.*
  Build both numbers with blocks side by side and compare hundreds first, then tens, then ones, out loud.
- *A number like 37 is just 'thirty-seven,' one whole thing, not 3 tens and 7 ones that can be split apart.*
  Have the student physically bundle 10 loose ones into a ten-stick before writing any digit, every time.
- *Regrouping ones into a ten changes the total amount.*
  Count the loose ones aloud, bundle, then count again by tens to show the total is unchanged.

Read together FOR THE STUDENT

Ten tens make one hundred. Think of ten bundles of ten straws. Push them together. Now you have one big bundle. We call that big bundle one hundred. One hundred is the same as one hundred ones. It looks small as one group. But it is worth a lot of ones.

Going further: Ten ones bundle into one ten. Ten tens bundle into one hundred. This is the same bundling idea, one size up. One hundred equals ten tens. It also equals one hundred ones. Bundling never changes the amount. It only changes how the amount is grouped.

Watch it work

Maya has 10 ten-sticks lined up on the table.

1. Maya counts the ten-sticks. She counts 10 of them.
2. She pushes all 10 ten-sticks together into one bundle.
3. The new bundle gets a name. It is called one hundred.
4. One hundred is the same as 100 ones.

The idea: Ten tens bundled together make one hundred, the same way ten ones make one ten.

Sam sees a picture of 10 ten-rods grouped in a box.

1. Sam counts the rods in the box. There are 10 rods.
2. Each rod is worth ten. Ten rods bundled together is one hundred.
3. Sam checks: one hundred is the same as 100 ones.

The idea: Any group of exactly 10 tens is one hundred, no matter how it is pictured.

Practice: Make a hundred

1. Here are 10 ten-sticks bundled together. What is this group called?



10 ten-sticks bundled

(A) One hundred (B) One ten

2. You have 10 bundled ten-sticks. How many ones is that?



10 ten-sticks bundled

(A) 100 ones (B) 10 ones

3. 10 ten-sticks got pushed together into one bundle. Did the total amount change?



10 ten-sticks bundling into one group

(A) Yes, it got smaller (B) No, it is still 100 ones

4. Which group shows one hundred?



Group A: 10 ten-sticks bundled

(A) A single ten-stick (B) A bundle of 10 ten-sticks

MATH · UNIT 1 · LESSON 3

Reading big numbers



Goal: Given a 3-digit number built from blocks, read it aloud and write it using hundreds, tens, and ones digits in the correct places.

About 14 minutes

Teach it FOR THE PARENT

1. **Say:** Look at these blocks: 3 big squares, 2 sticks, 4 tiny cubes. I count each kind. I write 3, then 2, then 4. The number is 324.
   Look for: Child watches the order: hundreds counted and written first, then tens, then ones.
2. **Say:** Now you try. Here are some blocks: 🟦🟦 are big squares (hundreds). 🟨🟨🟨🟨🟨 are sticks (tens). 🟩🟩🟩🟩🟩🟩 are tiny cubes (ones). Count only the big squares 🟦. How many are there? Say that number out loud.
   Look for: Child counts hundred-squares only and circles the matching digit for the hundreds place.
3. **Say:** Now look at the ten-sticks in the same blocks: 🟦🟦 big squares, 🟨🟨🟨🟨🟨 sticks, 🟩🟩🟩🟩🟩 tiny cubes. Count only the sticks 🟨. How many are there? Say that number out loud.
   Look for: Child counts ten-sticks only and circles the matching digit for the tens place.
4. **Say:** Last, look at the one-cubes in the same blocks: 🟦🟦 big squares, 🟨🟨🟨🟨🟨 sticks, 🟩🟩🟩🟩🟩🟩 tiny cubes. Count only the cubes 🟩. How many are there? Say that number out loud.
   Look for: Child counts one-cubes only and circles the matching digit for the ones place.
5. **Say:** You found 2 hundreds, 5 tens, and 6 ones. Put the three digits together in order: hundreds, tens, ones. What whole number do they make? Say it out loud.
   Look for: Child assembles the three digits in the correct left-to-right order to form the 3-digit number.
6. **Say:** You built a number from blocks today. Now let's practice reading and writing more numbers like this.
   Look for: Child is ready to move into independent practice items.

If they get stuck

- *The digit with more digits in it or written first is always the bigger number, without checking place value.*
  Build both numbers with blocks side by side and compare hundreds first, then tens, then ones, out loud.
- *A number like 37 is just 'thirty-seven,' one whole thing, not 3 tens and 7 ones that can be split apart.*
  Have the student physically bundle 10 loose ones into a ten-stick before writing any digit, every time.
- *Regrouping ones into a ten changes the total amount.*
  Count the loose ones aloud, bundle, then count again by tens to show the total is unchanged.

Read together FOR THE STUDENT

A 3-digit number has hundreds, tens, and ones. Hundreds are big square blocks. Tens are stick blocks. Ones are tiny cubes. Count each kind of block. Then write the count for hundreds first. Write tens next. Write ones last. Like 2 hundreds, 4 tens, 3 ones is 243.

Going further: Every 3-digit number has three place values. They are hundreds, tens, and ones. Count the hundred-blocks first. Write that digit first. Count the ten-sticks next. Write that digit second. Count the one-cubes last. Write that digit last. Say the number the same way: hundreds, then tens, then ones.

Watch it work

Blocks show 2 hundred-squares, 3 ten-sticks, 1 one-cube.

1. Count hundred-squares: there are 2. Write 2 first.
2. Count ten-sticks: there are 3. Write 3 next.
3. Count one-cubes: there is 1. Write 1 last. The number is 231.

The idea: Write digits in the same order you count the blocks: hundreds, tens, ones.

Blocks show 1 hundred-square, 0 ten-sticks, 5 one-cubes.

1. Count hundred-squares: there is 1. Write 1 first.
2. Count ten-sticks: there are 0. Write 0 next. Zero means none.
3. Count one-cubes: there are 5. Write 5 last. The number is 105.

The idea: A zero still needs a spot. It holds the place open.

Clareza Grade 2 · Math Lesson 3 Name: _____

Practice: Reading big numbers

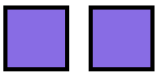
1. Blocks show 1 hundred-square, 1 ten-stick, 2 one-cubes. What is the number?



1 hundred, plus 1 ten-stick and 2 ones

(A) 12 (B) 121 (C) 112

2. Blocks show 2 hundred-squares, 0 ten-sticks, 3 one-cubes. What is the number?



2 hundreds, 0 tens, 3 ones

(A) 203 (B) 23

3. Blocks show 3 hundred-squares, 4 ten-sticks, 5 one-cubes. What is the number?



3 hundreds, 4 tens, 5 ones

(A) 34 (B) 345 (C) 543

4. The number 152 is shown by blocks. How many ten-sticks are there?



blocks for 152: 1 hundred, some tens, 2 ones

(A) 1 (B) 5 (C) 2

MATH · UNIT 1 · LESSON 4

Same number, new groups

Goal: Given the same quantity built two different ways (e.g., 3 hundreds 2 tens vs. 2 hundreds 12 tens), explain why both represent the same number.

About 15 minutes



Teach it FOR THE PARENT

1. **Say:** I have 3 hundred-blocks and 2 ten-rods. My friend has 2 hundred-blocks and 12 ten-rods. Who has more?
   Look for: Child guesses, maybe says the one with more blocks or more digits wins.
2. **Say:** 1 hundred trades for 10 tens. Same amount, just different pieces. Let's check both piles by counting the value.
   Look for: Child listens and pictures the trade of 1 hundred for 10 tens.
3. **Say:** 3 hundreds and 2 tens is 320. Now I trade 1 hundred for 10 tens. Count with me: 2 hundreds and 12 tens. Is it still 320?
   Look for: Child counts along and confirms both equal 320.
4. **Say:** Now you try. I have 4 hundreds and 5 tens. I trade 1 hundred for 10 tens. What do I have now?
   Look for: Child says 3 hundreds and 15 tens, and that the total is still 450.
5. **Say:** Does trading a hundred for tens change how much we have?
   Look for: Child types 'no' and can say the total stays the same.
6. **Say:** Great thinking! Now you'll practice spotting when two block piles are really the same number.
   Look for: Child is ready to start independent items.

If they get stuck

- *The digit with more digits in it or written first is always the bigger number, without checking place value.*
  Build both numbers with blocks side by side and compare hundreds first, then tens, then ones, out loud.
- *A number like 37 is just 'thirty-seven,' one whole thing, not 3 tens and 7 ones that can be split apart.*
  Have the student physically bundle 10 loose ones into a ten-stick before writing any digit, every time.
- *Regrouping ones into a ten changes the total amount.*
  Count the loose ones aloud, bundle, then count again by tens to show the total is unchanged.

Read together FOR THE STUDENT

You can build the same number in different ways. 3 hundreds and 2 tens is 320. So is 2 hundreds and 12 tens! Ten tens make a hundred. If you trade 1 hundred for 10 tens, the total stays the same. Like trading a $10 bill for ten $1 bills. Same money, different pieces.

Going further: The same quantity can be shown with different groupings of hundreds, tens, and ones. 3 hundreds 2 tens equals 320. 2 hundreds 12 tens also equals 320. Why? Because 1 hundred equals 10 tens. Trading a hundred for 10 tens changes the pieces. It does not change the total value.

Watch it work

Maya has 3 hundred-blocks and 2 ten-rods. That is 320. She trades 1 hundred-block for 10 ten-rods. How many tens does she have now?

1. Start: 3 hundreds and 2 tens. That is 300 + 20 = 320.
2. Trade 1 hundred for 10 tens. Now she has 2 hundreds.
3. Add the tens: 2 tens + 10 tens = 12 tens. Now: 2 hundreds and 12 tens. That is 200 + 120 = 320.

The idea: Trading 1 hundred for 10 tens keeps the total the same.

Sam builds 4 hundreds and 5 tens. That is 450. He trades 1 hundred for 10 tens. What does he have now?

1. Start: 4 hundreds and 5 tens. That is 400 + 50 = 450.
2. Trade 1 hundred for 10 tens. Now he has 3 hundreds.
3. Add the tens: 5 tens + 10 tens = 15 tens. Now: 3 hundreds and 15 tens. That is 300 + 150 = 450.

The idea: The pieces look different. The total value does not change.

Practice: Same number, new groups

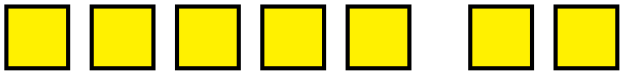
1. One pile has 2 hundreds and 3 tens. Another has 1 hundred and 13 tens. Are they the same number?



2 hundred-blocks and 3 ten-rods

(A) Yes, both are 230 (B) No, the second pile is more

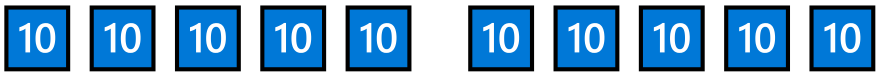
2. 37 can be shown as 3 tens and 7 ones. Can it also be shown as 2 tens and 17 ones?



3 ten-rods and 7 one-cubes

(A) Yes, both equal 37 (B) No, 37 is only one way

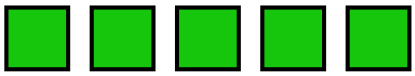
3. Ben has 10 loose ones. He bundles them into 1 ten-stick. Does he still have the same amount?



10 one-cubes, then bundled into 1 ten-stick

(A) Yes, still 10 (B) No, now it's only 1

4. Pile A: 4 hundreds, 1 ten. Pile B: 3 hundreds, 11 tens. Which is true?



4 hundred-blocks and 1 ten-rod

(A) They are equal (B) Pile A is bigger, it has more hundreds

MATH · UNIT 1 · LESSON 5

Greater than and less than



Goal: Given two 3-digit numbers with the same hundreds digit, compare them using greater than, less than, or equal to based on the tens or ones place.

About 14 minutes

Teach it FOR THE PARENT

1. **Say:** Imagine two piles of blocks. Both piles have 4 big hundred-flats: ■■■■. Are they the same? Let's find out!
   Look for: Child notices hundreds match and wonders what to check next.
2. **Say:** When hundreds match, we look at tens next. More ten-sticks means a bigger number. Let's picture it with blocks in our minds.
   Look for: Child says more tens means a bigger number.
3. **Say:** Look: 342 and 361. Both have 3 hundreds. 342 has 4 tens. 361 has 6 tens. Which is bigger?
   Look for: Child types or says that 361 is bigger because it has more tens.
4. **Say:** What do we check first when comparing two numbers?
   Look for: Child says hundreds place first, then tens.
5. **Say:** Now you try. Compare 275 and 271. Hundreds match. Tens match too. What do we check now?
   Look for: Child says ones place, then picks 275 as bigger.
6. **Say:** Great work! Now let's practice comparing more numbers with matching hundreds.
   Look for: Child is ready to start independent practice items.

If they get stuck

- *The digit with more digits in it or written first is always the bigger number, without checking place value.*
  Build both numbers with blocks side by side and compare hundreds first, then tens, then ones, out loud.
- *A number like 37 is just 'thirty-seven,' one whole thing, not 3 tens and 7 ones that can be split apart.*
  Have the student physically bundle 10 loose ones into a ten-stick before writing any digit, every time.
- *Regrouping ones into a ten changes the total amount.*
  Count the loose ones aloud, bundle, then count again by tens to show the total is unchanged.

Read together FOR THE STUDENT

Two numbers can look almost the same. Like 4 hundreds and 4 hundreds. Look at the tens next. More tens means a bigger number. Think of stacks of ten blocks. 4 hundreds

3 tens is more than 4 hundreds 1 ten. Same hundreds? Check tens. Same tens too? Check ones.

Going further: When two 3-digit numbers share the same hundreds digit, compare the tens place. More tens means a greater number. If tens are also equal, compare the ones place. We use symbols: > means greater than, < means less than, = means equal. Each place value counts differently. A ten-block is worth ten one-blocks.

Watch it work

Compare 342 and 361. Both have 3 hundreds.

1. Hundreds match. Both are 3. Move to tens.
2. 342 has 4 tens. 361 has 6 tens.
3. 6 tens is more than 4 tens. So 361 > 342.

The idea: Same hundreds digit means the tens place decides who is bigger.

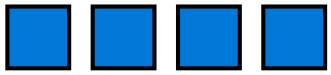
Compare 275 and 271. Hundreds and tens both match.

1. Hundreds match: both 2. Tens match: both 7.
2. Move to the ones place. 275 has 5 ones. 271 has 1 one.
3. 5 ones is more than 1 one. So 275 > 271.

The idea: When hundreds and tens tie, the ones place breaks the tie.

Practice: Greater than and less than

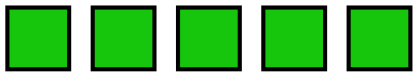
1. Compare 431 and 452. Both have 4 hundreds. Which is bigger?



4 hundred-blocks in each number

(A) 431 (B) 452

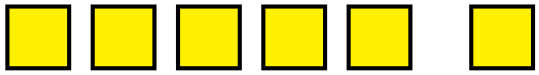
2. Compare 528 and 519. Both have 5 hundreds. Which is smaller?



5 hundred-blocks in each number

(A) 528 (B) 519

3. Compare 263 and 267. Hundreds match. Tens match too. Which is bigger?



6 tens in each number

(A) 267 (B) 263

4. Compare 314 and 314. What symbol shows how they compare?



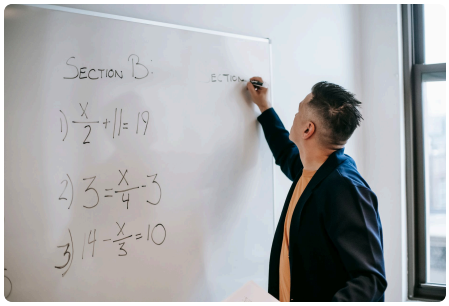
Same hundreds, tens, and ones

(A) 314 = 314 (B) 314 > 314

Skip counting

Goal: Given a start number, skip-count forward by 5s, 10s, or 100s to a stated stopping point.

About 13 minutes



Teach it FOR THE PARENT

1. **Say:** Let's hop like a bunny! Each hop is worth 10. Ready to count our hops?
   Look for: Child engages and repeats a starting number aloud.
2. **Say:** When we skip-count, we add the same jump every time. We start at a number. We stop at another number.
   Look for: Child can restate that jumps stay the same size.
3. **Say:** Watch me. Start at 20. Jump by 10: 30, 40, 50, 60. Did I stop at the right number?
   Look for: Child confirms the stopping number matches the target.
4. **Say:** Now start at 300. Jump by 100: 400, 500, 600. What changed each time?
   Look for: Child notices only the hundreds digit changed.
5. **Say:** Your turn. Start at 15. Jump by 5s. Stop at 35. Count it out loud with me.
   Look for: Child says 15, 20, 25, 30, 35 without skipping a step.
6. **Say:** Great hopping! Now you'll try some skip-counting problems on your own.
   Look for: Child is ready to move to independent practice items.

If they get stuck

- *The digit with more digits in it or written first is always the bigger number, without checking place value.*
  Build both numbers with blocks side by side and compare hundreds first, then tens, then ones, out loud.
- *A number like 37 is just 'thirty-seven,' one whole thing, not 3 tens and 7 ones that can be split apart.*
  Have the student physically bundle 10 loose ones into a ten-stick before writing any digit, every time.
- *Regrouping ones into a ten changes the total amount.*
  Count the loose ones aloud, bundle, then count again by tens to show the total is unchanged.

Read together FOR THE STUDENT

Skip-counting means jumping by the same size step every time. Think of hopping on a hopscotch board. If you hop by 10s, you say 10, 20, 30. Start where you're told. Take the same size hop each time. Stop when you reach the target number.

Going further: Skip-counting forward means adding the same amount each time. You start from a given number. When you count by 10s, only the tens digit changes. When you count by 100s, only the hundreds digit changes. The other digits stay the same. Say each number as you jump.

Watch it work

Start at 20. Skip-count by 10s to 60.

1. Say 20. That is your start.
2. Add 10 each time: 30, 40, 50.
3. Stop at 60. You reached the target.

The idea: Only the tens digit changes each jump.

Start at 300. Skip-count by 100s to 600.

1. Say 300. That is your start.
2. Add 100 each time: 400, 500.
3. Stop at 600. You reached the target.

The idea: Only the hundreds digit changes each jump.

Start at 15. Skip-count by 5s to 35.

1. Say 15. That is your start.
2. Add 5 each time: 20, 25, 30.
3. Stop at 35. You reached the target.

The idea: Each jump adds exactly 5, every time.

Practice: Skip counting

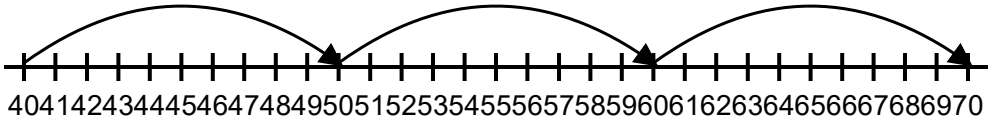
1. Start at 10. Skip-count by 10s. What comes next?



10 stars. Add 10 more stars next.

(A) 11 (B) 20

2. Start at 40. Skip-count by 10s to 70. What number comes right before 70?



Count by 10s from 40 to 70.

(A) 60 (B) 69 (C) 50

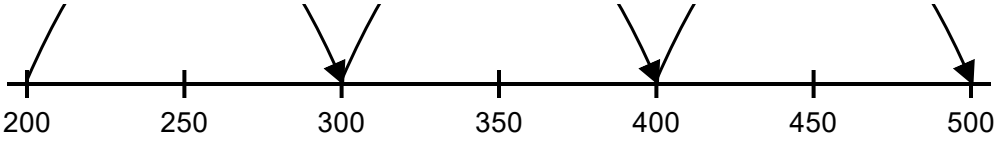
3. Start at 5. Skip-count by 5s. Which list is correct?



5 apples. Add 5 more each jump.

(A) 5, 10, 15, 20 (B) 5, 6, 7, 8

4. Start at 200. Skip-count by 100s to 500. What comes right after 300?



Count by 100s from 200 to 500.

(A) 400 (B) 301 (C) 200

MATH · UNIT 1 · LESSON 7

Build a new number



Goal: Given a 3-digit number never used in instruction, build it with blocks in a way the teacher did not model and justify the digit values.

About 15 minutes

Teach it FOR THE PARENT

1. **Say:** I have a number nobody has seen this week: 256. Can you build it with blocks?
   Look for: Child attempts to separate the number into parts before grabbing blocks.
2. **Say:** Each digit tells you a pile. Hundreds digit means flats. Tens digit means rods. Ones digit means cubes.
   Look for: Child repeats or points to which digit means which block.
3. **Say:** Watch me build 214. I see a 2, so I grab 2 flats. I see a 1, so I grab 1 rod. I see a 4, so I grab 4 cubes.
   Look for: Child watches each step and can point to the digit that matched each pile.
4. **Say:** Which digit told me to grab 4 cubes?
   Look for: Child points to or says the ones digit, 4.
5. **Say:** Now you build 132. Tell me each pile and which digit made it.
   Look for: Child builds 1 flat, 3 rods, 2 cubes, and names the matching digit for each.
6. **Say:** If you had 10 loose cubes and bundled them into 1 rod, did the amount change?
   Look for: Child says no, it is still 10, just bundled differently.
7. **Say:** Now you will build new numbers on your own and tell me why each digit made its pile.
   Look for: Readiness to justify pile sizes from digits without a model.

If they get stuck

- *The digit with more digits in it or written first is always the bigger number, without checking place value.*
  Build both numbers with blocks side by side and compare hundreds first, then tens, then ones, out loud.
- *A number like 37 is just 'thirty-seven,' one whole thing, not 3 tens and 7 ones that can be split apart.*
  Have the student physically bundle 10 loose ones into a ten-stick before writing any digit, every time.
- *Regrouping ones into a ten changes the total amount.*
  Count the loose ones aloud, bundle, then count again by tens to show the total is unchanged.

Read together FOR THE STUDENT

A number like 342 is made of piles. The hundreds digit tells you how many big flats. The tens digit tells you how many rods. The ones digit tells you how many little cubes. Build each pile from the digit. Then check your total matches the number.

Going further: Each digit in a 3-digit number names a pile size. The hundreds digit gives flats. The tens digit gives rods. The ones digit gives cubes. Build the piles from the digits. Then say which digit made which pile.

Watch it work

Build 214 with blocks.

1. Look at the hundreds digit: 2. Get 2 flats.
2. Look at the tens digit: 1. Get 1 rod.
3. Look at the ones digit: 4. Get 4 cubes.

The idea: Each digit tells you how many of one block size to grab.

Build 132 with blocks.

1. Hundreds digit is 1. Get 1 flat.
2. Tens digit is 3. Get 3 rods.
3. Ones digit is 2. Get 2 cubes.

The idea: The digit's place tells you which block size it counts.

Clareza Grade 2 · Math Lesson 7 Name: _____

Practice: Build a new number

1. Build 243. How many flats do you need?



Flats, rods, and cubes to choose from

(A) 4 flats (B) 2 flats (C) 3 flats

2. Build 158. How many rods do you need?



Rods to count

(A) 8 rods (B) 1 rod (C) 5 rods

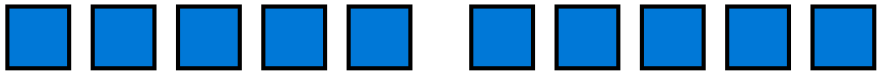
3. You built 37 with 37 loose cubes. Is this right?



Some of the 37 cubes

(A) No, use 3 rods and 7 cubes (B) Yes, cubes are fine

4. You bundle 10 loose cubes into 1 rod. Did the amount change?



10 cubes becoming 1 rod

(A) Yes, it got smaller (B) No, it is still 10

Counting real things



Goal: Given a real classroom-counting context never modeled in the unit (e.g., counting the total pencils in the whole school building using boxes of 100, packs of 10, and loose pencils, with no blocks or place-value mat present), state how many hundreds, tens, and ones the total has and justify the answer without being told which representation to use.

About 15 minutes

Teach it FOR THE PARENT

1. **Say:** Guess what! Our school has SO many pencils. Boxes, packs, and loose ones. Let's count them all!
   Look for: Child is attentive and engaged, ready to think about groups.
2. **Say:** A box has 100 pencils. A pack has 10 pencils. A loose pencil is just 1. We count each kind.
   Look for: Child can repeat: box is 100, pack is 10, loose is 1.
3. **Say:** Imagine 2 boxes, 4 packs, and 3 loose pencils. 2 boxes means 2 hundreds.
   Look for: Child points to boxes and says '2 hundreds' or nods along.
4. **Say:** Now 4 packs means 4 tens. And 3 loose means 3 ones. So the number is 243!
   Look for: Child can say hundreds, tens, ones in order: 2, 4, 3.
5. **Say:** Your turn! 1 box, 9 packs, 6 loose pencils. How many hundreds, tens, and ones is that?
   Look for: Child answers 1 hundred, 9 tens, 6 ones, or 196 total.
6. **Say:** You did it! Now let's try some more counting problems on your own.
   Look for: Child is ready to move into independent practice items.

If they get stuck

- *The digit with more digits in it or written first is always the bigger number, without checking place value.*
  Build both numbers with blocks side by side and compare hundreds first, then tens, then ones, out loud.
- *A number like 37 is just 'thirty-seven,' one whole thing, not 3 tens and 7 ones that can be split apart.*
  Have the student physically bundle 10 loose ones into a ten-stick before writing any digit, every time.
- *Regrouping ones into a ten changes the total amount.*
  Count the loose ones aloud, bundle, then count again by tens to show the total is unchanged.

Read together FOR THE STUDENT

Numbers have three kinds of groups. Big groups of 100. Medium groups of 10. Single ones. Pencils in boxes are like blocks. A box of 100 is like 1 hundred-block. A pack of 10

is like 1 ten-rod. A loose pencil is like 1 one-cube. Count each kind. Then you know the number.

Going further: Any pile of things can be sorted into hundreds, tens, and ones. It does not matter what the things are. Boxes of 100 pencils act just like hundred-blocks. Packs of 10 pencils act just like ten-rods. Loose pencils act just like one-cubes. Count boxes, count packs, count loose ones. That gives you the hundreds digit, tens digit, and ones digit.

Watch it work

A school has 2 boxes of 100 pencils, 4 packs of 10 pencils, and 3 loose pencils. How many pencils total?

1. Count boxes of 100: there are 2. That means 2 hundreds.
2. Count packs of 10: there are 4. That means 4 tens.
3. Count loose pencils: there are 3. That means 3 ones.
4. Put them together: 2 hundreds, 4 tens, 3 ones is 243.

The idea: Boxes, packs, and loose pencils work just like hundred-blocks, ten-rods, and one-cubes.

A library has 1 box of 100 books, 9 packs of 10 books, and 6 loose books. How many books total?

1. Count boxes of 100: there is 1. That means 1 hundred.
2. Count packs of 10: there are 9. That means 9 tens.
3. Count loose books: there are 6. That means 6 ones.
4. Put them together: 1 hundred, 9 tens, 6 ones is 196.

The idea: It does not matter what is being counted. Groups of 100, 10, and 1 always work the same way.

Practice: Counting real things

1. A store has 3 boxes of 100 apples. How many hundreds is that?



3 boxes of 100 apples

(A) 3 tens (B) 3 hundreds

2. A shelf has 5 packs of 10 crayons. How many tens is that?



5 packs of 10 crayons

(A) 5 tens (B) 5 hundreds

3. A truck has 2 boxes of 100 balls, 3 packs of 10 balls, and 5 loose balls. How many hundreds, tens, ones?



2 boxes, 3 packs, 5 loose balls

(A) 2 tens, 3 hundreds, 5 ones (B) 5 hundreds, 3 tens, 2 ones

(C) 2 hundreds, 3 tens, 5 ones

4. Which number has more hundreds: 4 boxes of 100 cups, or 39 loose cups?



4 boxes vs loose cups

(A) 39 loose cups (B) 4 boxes of 100 cups

Answer key

Math

Lesson 1	1. A 2. B 3. A 4. B
Lesson 2	1. A 2. A 3. B 4. B
Lesson 3	1. C 2. A 3. B 4. B
Lesson 4	1. A 2. A 3. A 4. A
Lesson 5	1. B 2. B 3. A 4. A
Lesson 6	1. B 2. A 3. A 4. A
Lesson 7	1. B 2. C 3. A 4. B
Lesson 8	1. B 2. A 3. C 4. B
Unit 1 check-up	1. A 2. B 3. B 4. A 5. B 6. A 7. A 8. B 9. B 10. B 11. A 12. A 13. A 14. B 15. A 16. A

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