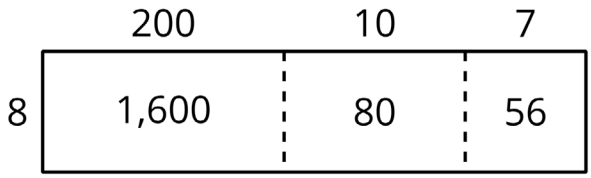
Math Moments that Matter
FOURTH GRADE

Multi-Digit Operations and Whole-Number Problem Solving

In 4th grade, students build on what they know about adding, subtracting, multiplying, and dividing as they work with larger numbers. They use place-value understanding, visual models, and equations to plan and solve multi-step problems. As they look for patterns and connections between operations, students develop flexible thinking and confidence in solving real-world math situations.

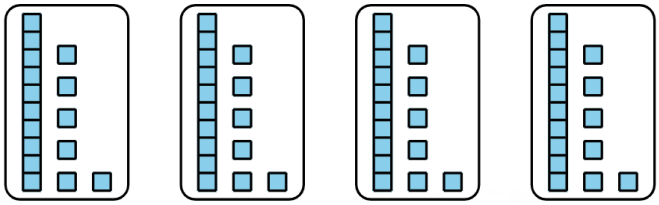
Students use different tools to show their thinking when solving problems with big numbers. In the first image, a student uses an area (how much space is inside a shape) model to break apart a multiplication problem into hundreds, tens, and ones. In the second image, a student uses base-ten blocks to show how a number can be divided into equal groups. These visual models help students see how large numbers can be split into smaller pieces to make the work easier. Using tools like these helps students understand what the numbers mean—not just memorize steps.

EXAMPLE: *Area model used to break apart a multi-digit multiplication problem*



1,600 + 80 + 56 = 1,736

EXAMPLE: *Base-ten blocks showing a number divided into equal groups*



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Problem Solving in Math

When students solve multi-step problems When students solve problems with more than one part, they're learning to plan, reason, and stick with a challenge. They're learning to plan, reason, and stick with a challenge. Working with larger numbers helps them apply what they know about place value and number patterns to make sense of more complex situations. They learn to:

- Think about what the problem is asking and decide which operations to use
- Use drawings, models, or equations to show their thinking
- Check that their answers make sense for the situation
- Use math words, like "regroup", "decompose" (break numbers apart), "distribute" (multiply each part), and "estimate"
- Explain their reasoning: "I used an area model to solve 23 × 15 because it helped me see the tens and ones."

These habits help students connect ideas across operations, notice structure in numbers, and build confidence when faced with new challenges.

What You Might See in the Classroom

Students using base-ten blocks, area models, or equations to solve multi-digit problems.

Teachers asking:

- "How did you decide which operation to use?"
- "What does each step in your strategy mean?"
- "How can you check that your answer makes sense?"

Students breaking numbers apart by place value to make calculations easier.

Students using drawings or visual models to explain their reasoning.

Students comparing strategies and discussing which are most efficient (clear, accurate, and make sense for the problem).

What You Can Do at Home

Use real-life examples: "We spent $124 yesterday and $86 today. How much did we spend altogether?"

Ask: "Can you explain how you solved that?" or "How could you check your answer another way?"

Play: "Estimate 37 × 6. What's a quick way to check if your answer makes sense?"

Connect ideas: "Can you draw a quick model to show what you did?"

Talk it out: "What's your favorite way to solve big number problems? Why?"

Make it a Math Moment!

Every problem tells a story. When students explain how they break apart and combine numbers, they uncover the story in each step—helping them see how operations and place value work together in ways that make sense.

Tap or Scan for Interactive Tools and More Resources!

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