

NEWSLETTER

Issue 45 · 2026 · Math Success with DMTI



WHY SUBTRACTION IS NOT JUST ADDITION BACKWARD

The same subtraction equation can represent different relationships among quantities.

In today's edition, we explore:

- **One equation, three situations:** what $26 - 17 = 9$ can represent
- **What answers reveal:** the reasoning behind two common responses
- **Classroom tips:** moves that connect models, equations, and place value
- **The research:** how children's strategies follow the structure of a problem

Educators!

A student writes $274 - 138 = 144$. When you ask how, she explains: "Eight minus four is four, seven minus three is four, and two minus one is one, so the answer is 144." She subtracted the smaller digit from the larger digit in every place.

Another student reads, "Maria has 26 stickers, and Jamal has 17. How many more does Maria have?" and says, "It says 'more,' so I should add 26 and 17 to get 43."

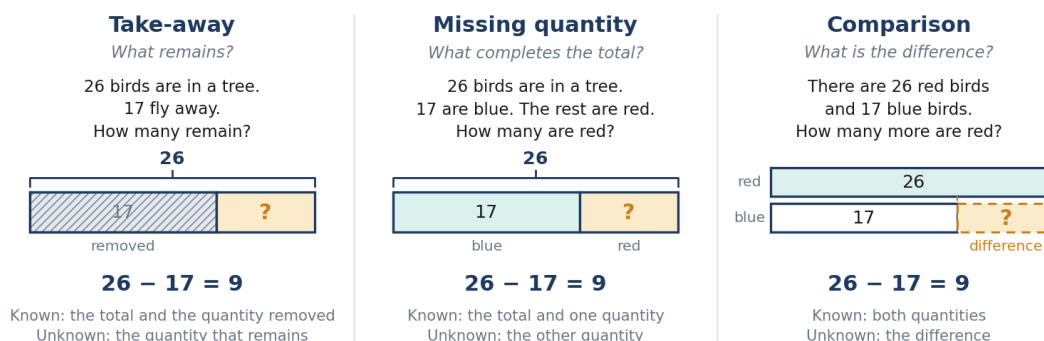
Both responses tell us something about how the student is reasoning. One student is treating subtraction as a digit-by-digit procedure. The other is deciding which operation to use from a word in the problem. Before correcting either answer, we need to understand the reasoning that produced it.

Classroom Tips

1. **Vary the situations.** Use the same numbers in take-away, missing-quantity, and comparison problems.
Ask, "Which quantity are we finding?"
2. **Connect models and equations.** Ask students to explain how the model represents the quantities and their relationship. Ask, "What does each quantity represent? How does the model show the relationship?"
3. **Connect addition and subtraction.** Show how $26 - 17 = 9$ and $17 + 9 = 26$ represent the same relationship.
Ask, "What does the difference represent?"
4. **Connect procedures to place value.** Ask what unit was decomposed and how the quantity stayed equal.

One Equation, Three Situations

The equation $26 - 17 = 9$ can represent three different situations.



The equation is the same. What the quantities represent is different.

What Does the Research Say?

Children's first strategies for subtraction often follow the structure of the problem: they separate quantities in take-away problems, add on in missing-quantity problems, and match quantities in comparison problems (Carpenter & Moser, 1984). Errors such as $274 - 138 = 144$ are often consistent procedures that students construct, not random slips (Brown & VanLehn, 1982). Understanding and procedural fluency develop together, each supporting the other (Rittle-Johnson et al., 2015).

Keep developing mathematical thinkers.

More Information

This is a quick overview. To read DMT Insight 45, watch the video, and download the Companion, go to DMT Insights at mathsuccess.io/dmtinsights.

What subtraction misconception do you see each year? What question helps you uncover the relationship the student is using? Share it with us at contact@dmtinstitute.com.

For more information on professional development and curricular resources, visit mathsuccess.io.



mathsuccess.io



mathsuccess.dmtinstitute.com

CONNECT WITH DMTI



@dmtinstitute



DMT Institute



@dmtinstitute



@dmtinstitute



@dmtinstitute



@math.success



@DMTInstitute.bsky.social