

READING WRITING IN THE DISCIPLINES

Using Math Vocabulary to Articulate Understanding

Derek Boyd:

So we did Side-Side-Side and Side-Angle-Side on Monday. We're going to do the last two congruence theorems today.

Students remember what they can articulate and what they can say and what they can talk about, and it's hard to talk about math if you don't have the words to talk about it.

So you can say angle or side.

Student:

Side.

Boyd:

Side, okay, so which sides are congruent to each other?

Student:

A and B and D and E.

Boyd:

So side A and B is going to be congruent to DE.

So I found that the more I can get them to see it around them, I cover my walls with words. Pushing them to really articulate their thinking and have them discuss between themselves their process of solving problems has helped a lot.

Student:

180. And, like, the box is right there. So you know...

Student:

So it equals 90.

Student:

Minus 90.

Student:

Oh yeah, it equals 90.

Boyd:

Getting them to do the explanations.

Student:

It all adds into 180, so what I did, I saw that the box is there, so that's 90 degrees, and I saw 52, so I added the 90 degrees and the 52 degrees, and I got 142 plus x equals 180, then I subtracted 142, and then x equals 38.

Boyd:

Talking happens, so when they're explaining problems on the board or from their seat, I require them to give me the right words when they're explaining things.

If there's nothing there and I can't assume anything, I only have two parts that are congruent...

Student:

It's not congruent.

Boyd:

Thank you very much, it's not congruent.

So I want to hear those words happen, and that's from day one. Triangle's three sides, right, pentagon's five sides, hexagon's six sides, septagon's seven sides. What is the four-sided shape one, do you remember? Quadrilateral?

Boyd:

I make an effort to use the vocabulary as much as I can, to say "congruence" rather than "they're the same."

Student:

J... I?

Boyd:

Mm-hmm, is congruent to what?

Student:

Is congruent to EI.

Boyd:

Yes, ma'am.

Four weeks ago, they were saying "they're equal" or "they're the same" or "those things are the same" or "they look the same." So getting them to say "congruence" without me prompting them to say it all the time was, like, quite a shift.

Student:

I said they are congruent to each other because, like, they have the same lines, but I wasn't sure of the letters.

Boyd:

So it's a lot of repetition with that, a lot of kind of correcting them, redirecting them on the way, and then working into practice.

Student:

And for this one, it would be the same, right?

Student:

Yeah, but there are two nones and one angle pair, so the angle pair would be B...

Student:

And E, right?

Student:

Yeah.

Boyd:

Then you identify what your congruent angle pairs are, what your congruent sides are, and what your other angle pairs are.

On the board, when we were doing diagrams of the congruent triangles and literally sticking the words next to the parts for them to see it.

So what's my congruent angle pair for these first two triangles right here?

Student:

AC and... FD?

Boyd:

Yes, ma'am.

That's great for me to see because it's been hit or miss with many of my classes. A lot of the students responded really well to that. These aren't just lines and numbers, but there's words that go with them. And you're gonna get, "This is not

an English class, this is my math class," and I just have to respond with, "How are you going to talk about math if you have no words to use?"

Do I have any congruent sides here when I look at these two triangles?

Student:

AB is congruent to EF.

Boyd:

Thank you so much.