

READING WRITING IN THE DISCIPLINES

Collaborating to Extend Mathematical Understanding

Derek Boyd:

I like that these angles are congruent to each other, these angles match up, and that these angles match up, okay? And since this says "Angle-Side-Angle," the side needs to be in between them.

So my lesson purpose for today's class was for students to be able to recognize triangle congruence theorems, to identify information that they need to make them true, and to be able to explain them using vocabulary applicable to the concepts.

Student:

So you add all the numbers that's already in the quadrilateral, and then it comes out to 253, and so it's 360 minus 253, and that's 107, so it equals 107.

Boyd:

If you haven't already started, your Do Now time officially starts now.

The day always begins with a Do Now. It's four questions: two questions that are review from the past, and then two that are highlighting what's going to come for the day. And so we start the class with that. It's five minutes of them solving the problems.

Student:

"You're to explain the theorem, how it's either AAS, SAS." So it equals 90. Minus 90. Oh yeah, it equals 90. So what are you going to do?

Student:

What do you mean?

Student:

You have this.

Student:

You gotta subtract it.

Boyd:

It's for them to get centered into the class, to kind of get their minds ready for math. So you'd say...

Student:

J what?

Student:

J... I?

Boyd:

Mm-hmm, it's congruent to what?

Student:

It's congruent to EI.

Boyd:

Yes, ma'am.

After the five minutes have passed, I give them the opportunity to solve problems on the board.

Student:

This one, if you have the two angles and RT...

Boyd:

Number one, can you explain yours, please?

Student:

I said they are congruent to each other, because, like, they had the same lines. But I wasn't sure of the letters. They both have the same letters on them, so... Also, they're both 90 degrees, I forgot to put that there.

Boyd:

Oh, so it should be 90 degrees here, cool. So these sides are congruent to each other, they both have lines to them, so they correspond to each other. These ones both have two lines to them, so they correspond to each other.

Student:

And they're both 90 degrees. And these are both 90 degrees, so the angles correspond to each other.

Boyd:

So after we did that, we went on to the classwork. We started this unit on triangle congruence on Monday, and this was a continuation to that. So we did Side-Side-Side and Side-Angle-Side on Monday.

Today, we're starting Angle-Side-Angle and Angle-Angle-Side. Take one and pass it back, fellas. We gotta do guided notes. It was an accommodation for some IEP students I had years ago, and I realized that if one of them got the notes and then somebody else got them, eventually, it just became something for everybody, and I found that students were able to retain things better and had resources to look back to.

If I look at this diagram, these two triangles, which angles are congruent to each other, do you see? Anyone? Which angles do you see are congruent to each other, Kenyatta?

Kenyatta:

Right angles.

Boyd:

Right angles, good, and what are my right angles?

Kenyatta:

90 degrees.

Boyd:

Okay, 90 degrees, that's what right angles are.

So that's why every class period, or most of them, we have class where it's, like, guided notes in front of them.

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

Student:

B and E.

Boyd:

So angle B is congruent to angle E.

Classwork today was continuing a lesson about triangle congruence theorems, and about doing proofs and everything.

Do I have any congruent sides here when I look at these two triangles that are shown by maybe some lines, something that denotes that they're the same?

Student:

AB is congruent to EF.

Boyd:

Thank so you much, I like that.

So after they completed that, they have the problems around the room for them to solve. So if you look up around the room, there are four neon yellow papers and four red papers. They each have problems on them that are like that.

So you're going to get a diagram of two triangles, and it's going to say they're congruent by either Angle-Side-Angle or Angle-Angle-Side. You identify what information you need to finish it, and you're going to say why you need it.

I do that for my kids that need to move around a lot. And I really change it up, because students here, they sit down for most of the day, and so they still need to move. They don't have recess anymore, but they still need it. So it's a time for them to get moving and to interact with each other.

Student:

Angle-Angle-Side.

Student:

You just need this side.

Student:

You know what I meant.

Boyd:

So I went around the room, and all the problems were given and the proofs were given and the theorems were given, and they're supposed to find what in the diagram is missing, and then can they articulate why it's missing, where it needs to be, and why it needs to be there.

Jade:

We went to each problem and we had to draw the picture of the diagram and then figure out if it was the Angle-Side-Angle, Angle-Angle-Side, and then figure out what was missing, and then write what was missing and if it was congruent.

Yeah, so it'd be AAS, and it'd be congruent.

Boyd:

You're missing a side, now which side?

Student:

The angle?

Boyd:

So you're looking for the missing side.

Student:

This side right here.

Boyd:

So this side over here, what's this side?

Student:

It's angle YZ and angle NM.

Boyd:

Good, so... Not angles, they're not angles, these things?

Student:

Sides.

Boyd:

Sides, thank you, exactly, so those are sides.

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 angle B...

Student:

And E, right?

Student:

Yeah. Then there's none right here, and then there's none right here.

Boyd:

They're all helping each other out, so that was really fun to see, how I can kind of step back. At one moment, Jeffery's like, "I'm doing your job for you," and I'm

like, "I'm fine with that, please, explain things to your friend." That was really exciting to see, how so easily they're helping each other out.

Boyd:

Once you all finish, let me know and I'll take your classwork and I'll trade you an exit slip, and then once you finish your exit slip, you can go.

Boyd:

The exit ticket was kind of to wrap it all up, so kind of understanding what's congruent and what's not and why and getting them to write again.

Okay, I have an exit slip for you. Knock this out, hand it to me, and then you'll be good.

So the way that I balance content and literacy is trying to weave them together just because I know my students retain things much better when they can interact with speaking with it and talking about it and talking with their friends about it.

Very nice.

Student:

I was done before Kim was done.

Boyd:

It's not a contest!

Boyd:

When I introduce more literacy, more reading, and more vocabulary and writing and everything, they've just gotten worlds better. There's just, like, a bigger understanding for them. Recognize the ones that are congruent. But if there's none for all the other ones, then you put "none" for the rest of them. And you said "not congruent," that's absolutely fine.

Student:

So confusing!

Boyd:

I'm not trying to make it... That's good, so you're good? Thank you, very nice.