DOINGWHATWORKS

VIDEO
5:55 min

Full Details and Transcript

Lesson Pre-Conference

Patriot Elementary School, Nebraska
November 2011

Topic IMPROVING MATHEMATICAL PROBLEM SOLVING IN GRADES 4 THROUGH 8

Practice PREPARE PROBLEMS

Highlights

- Math coach Danielle Inserra and classroom teacher Sarah Novacek focus a lesson pre-conference on planning for students struggling with subtraction problems.
- Ms. Inserra suggests using strip diagrams as a visual representation for a problem and then connecting this visual to solving subtraction problems with a number line.
- Together they plan how to get struggling students to make sense of problem situations.
- Referring to notes in their curriculum materials, they talk about needing to make students aware of different types of subtraction problems.
- Finally, they examine different strategies students may use to solve problems and how to debrief the lesson, getting students to share their strategies with the class.

About the Site

Patriot Elementary School
Papillion, Nebraska

Demographics

- 89% White
- 4% Hispanic
- 3% Black
- 1% Asian
- 1% Native American
- 5% Free or Reduced-Price Lunch

Patriot Elementary School in the Papillion-La Vista School District strives to meet all students' needs through a rigorous district math curriculum focusing on:

- Problem solving;
- Using math in everyday situations;
- Communicating mathematical solutions and explaining the reasoning behind these solutions;
- Hands-on experiences using a variety of manipulatives to build math understanding; and
- Asking questions and investigating solutions so students explore and discover in problem situations.

Full Transcript

00:03 Text on screen: Coach and Teacher Plan for Students Struggling With Subtraction Problems

Danielle Inserra **00:09** Today we are going to plan your lesson on subtraction problems.

Sarah Novacek Yes.

Inserra So, let's look at, first of all, the kids that are struggling.

Novacek She's great with adding them. She can add the three-digit numbers; it's just the subtracting.

Inserra And where do you see her break down? Because that seems typical with kids that struggle, is that they are more successful with addition compared to subtraction.

Novacek 00:29 And the story problems—do I add or do I subtract? That's another struggle for her.

Inserra Okay, so the understanding of story problems, too.

Novacek And, I mean, she's successful with adding, so I think she just wants to take the numbers and add them every time.

Inserra Sure, sure. She is comfortable with and confident with it.

Novacek Yup.

Inserra Well, I actually am wondering about using a diagram type of way to represent with her.

Novacek Okay.

Inserra Sometimes kids that struggle with that visual representation of it, sometimes can be successful if it's in like a tape diagram.

Novacek Okay.

Inserra 01:04 And in that way of representing it, it gives them that visual understanding. And, you know, you had talked about subtracting is difficult for her, so maybe seeing it in this sense would help her, where you just want her to be able to visualize…

Novacek Using that whole diagram.

Inserra …using this diagram.

Novacek Okay.

Inserra And then when she's ready, we can have this and incorporate that number line with it so she can see…

Novacek Show the relationship.

Inserra Yes.

Novacek 01:31 If you look at these, all of these answers are correct now, but her first time solving them she also, she didn't understand the story problem part of it, so she was adding the two numbers. Then when we moved on, then she kind of looked at me, and she was like "No," and she knew that wasn't right, so being able to understand that, figure out…

Inserra So she didn't understand the problem, but she had enough sense to understand that what she was doing wasn't working.

Novacek The answer was not right.

Inserra Yeah, so she was able to monitor—that's great.

Novacek 01:55 So she was the one who said, "I need to do a number line." So she started and she successfully got, you know, she started at 37 and added up to a 100. But then when I asked her what her answer was, "So how far away is 37 from 100?" her answer was "100." And so kind of talking her through that, so I am like, "You're telling me that if you start at the mile marker 37 and you drive to 100 it's 100 miles?" "Yeah." Not understanding the number line, how this is the answer.

Inserra Let's think about these two, when we look at the lesson for Friday. When we're talking about solving problems, our goal—let's think about what our end goal is for them to be able to do and think about how these problems meet that goal or how we might change them to meet our goal.

Novacek Okay.

Inserra 02:43 And maybe then we come up with a couple of different activities. I am guessing, I didn't ask but I'm assuming, that we're not introducing any new vocabulary in this lesson?

Novacek No. It's mainly just a review, so same vocabulary.

Inserra You're working on more subtraction problems and being able to visualize it.

Novacek Yes.

Inserra 03:04 Now, you know that 80 percent of solving problems is being able to understand the problem first. And so maybe with your ones that are struggling to understand the problem, maybe they could get with a buddy and read the problem and then have to retell the problem to a friend.

Novacek Okay.

Inserra Maybe they have to draw it out first and read that problem and retell it and really visualize and figure out what that meaning of the problem is before we even begin.

03:36 In the book it talks about how subtraction is more than, there are more situations than just taking away.

Novacek Take away.

Inserra And so they suggest students to also give story problems that are not just that take away…

Novacek Yes.

Inserra …but the comparison model also and how many more from one number to another.

Novacek Yes.

Inserra And so how do you think you might incorporate that into your whole-group lesson?

Novacek 04:02 I think whole group, before I send them off to do their work, I want to be able to get at least one example of each problem up on the board or up on the chart paper so that they have that as a visual. Because I do feel that that's one of the toughest parts of subtraction, is just the different types of story problems, knowing to subtract.

Inserra Sure.

Novacek So if they are consistently given those types of problems, it will make them more successful.

Inserra Sure, and if they're not able to come up with one, you'll have one ready to share with them?

Novacek Yes, I'll model one and then see if they can use that model, my problem, to create another one.

Inserra 04:38 The last part of the lesson is sharing and comparing strategies. Now throughout this unit, throughout the school year, you've used and taught lots of different strategies.

Novacek Yes.

Inserra What are some that you expect them to be using?

Novacek 04:54 One that we have worked on is starting at the smaller number and adding up.

Inserra So adding up with a number line and then possibly with…

Novacek Challenging them with the equations.

Inserra Equations, okay. What else do you see?

Novacek Breaking the smaller number up into parts.

Inserra What we'll want to think about is, when we ask kids to share their strategies, what strategies we're going to be looking for to call upon. While students are sharing strategies, you are also engaging the rest of the students by having them turning to talk.

Novacek 05:28 Turn to talk: "What did you just see?" "What did they just do first?" and "What did they do?"

Inserra And maybe why they did it that way, and maybe "If there is a strategy that your peers just shared that you don't usually use, maybe you could think about using that next time." So encouraging them to pick up a new strategy, internalize it, and then be able to use it themselves.

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