



Welcome, fellow recovering traditionalist, to episode 60. Today is an interview with third-grade teacher, Cathy Palkovic, and a theme of our conversation is about building self-reliance in math.

Welcome to Build Math Minds the podcast, where fidelity to your students is greater than fidelity to your textbook. I'm your host, Christina Tondevd, the recovering traditionalist and BuildMathMinds.com Founder, where my mission is to change the way we teach elementary math to our kiddos. Are you ready to start building math minds and not just creating calculators? Let's get started.

Christina - In this interview with Cathy, we get into it all kinds of things, from what her distance learning looks like to Math Running Records, to how her third-graders solved  $898 \times 52$  and they did it without any guidance from her. We discuss how she has helped her students build their self-reliance through things she has learned. One of the things that has helped her along her math teaching journey is my Number Sense course. The registration for the courses are now open from May 1st through 14th you can go to [buildmathminds.com/enroll](https://buildmathminds.com/enroll) to join a course, but I'll also link to the course and all the other resources Cathy mentions over on the show notes page, which is [buildmathminds.com/60](https://buildmathminds.com/60). All right, here's my interview with Cathy.

Christina - Well, I am honored to welcome Cathy Palkovic to the podcast because she has been a very, very active member of Build Math Minds and one of my Number Sense courses. I have also been nudged quite hard by Ann Elise Record. Those of you who are part of Build Math Minds know Ann Elise saying, "You've got to get Cathy on your podcast because she is doing some amazing things," so I cannot wait to have this chat with Cathy. Welcome, Cathy.

Cathy - Thank you for having me. I'm very excited to be here.

Christina - No, I cannot wait. First, let's just start off with, tell people a little bit about you and your role in school.

Cathy - I am a third-grade teacher. I have been teaching for 24 years now. I've taught first, second, third, and fourth, but most of my years have been in third grade. I'm also a tech coach in my district, helping people use technology. For the last three years, I have been team teaching. I have two math classes, two science classes in a homeroom, and then I switched with another teacher, which has really helped me focus on best practices for math teaching.

Christina - That is really cool. My own personal kids who are fifth and sixth grade, the fifth and sixth-grade teachers do team teaching. My kids personally love that. That's the way I taught also, but it seems to be only kind of an upper grades thing, but you're doing it at third grade.

Cathy - Yep. We started three years ago and it just started in a PLC conversation. The four of us looked at each other and I was like, "In a perfect world, I would be a math teacher, you could be the science teacher, you could be

social studies, and you could be the reading/writing teacher." Our principal happened to be there and she heard it and we started investigating and looked into it and we ended up making two teams. It was me and one teacher and the other two teams.

Cathy - It's worked out quite well. What's the best part is you can really hone in on what you're teaching. I spend as much time as I would have before when I was teaching all subjects, but now I'm just super focused on the math and the science and you get to teach everything twice on the same day, which before, you taught something and it was like, oh, afterwards, you're like, "I just switched this. I would do that different," I actually get to do it different 10 minutes later.

Christina - Yeah, I mean, that's like some of the best professional learning right then and there, you get to make those changes in action. That's pretty cool. Yeah.

Christina - Let's start off with, I made reference to Ann Elise. I know [Ann Elise](#) has come out to your district and done professional development. You've had professional development through Build Math Minds. One of the things that we like to start off with is just: What are some of those professional development things that have made a big impact in your teaching? Then we'll talk about how that has impacted it.

Cathy - Probably when I switched to being strictly the math and science teacher, I felt like we all do, we all have our strengths and our weaknesses going through teaching and when we were in school. I wasn't a super strong math student at all, I was someone who was good at memorizing. I could plug in numbers to a formula and get an answer, never really knew why or how it worked. I think when I first started teaching, I taught the way I was taught, which was to use those kinds of things like memory algorithms and things like that.

Cathy - The longer I taught, the more I was like, "I know this isn't working. I know this isn't working." I just kept looking for something. As a third-grade teacher, we always would sit around and say, "These kids just don't have number sense," but we didn't really know how to teach the number sense to them or how to help develop it, so we were just always searching. I found the [Math Running Records](#) book on the website.

Christina - Awesome.

Cathy - I started administering the running records to my students and I was like, "This is awesome. Now, I can see where they have issues," but then it was like, okay, now how do I fill these holes? I started looking for more and more and we had reached out to Ann Elise and she was able to come and actually start working with our district, which was pretty awesome. We learned a lot and then she turned me onto the Build Math Mind community and I took your Number Sense 201 course in the fall.

Cathy - It's just changed everything I do. I do number talks every single day with my kids. I found that that's been the hugest thing to help them develop number sense because instead of like, it used to be a lot of me showing them, "Here's a way you could get the answer," "Here's another way you could get the answer," and it was kind of like, "Watch me. Now, you go do it," where now, I just put a problem up and I let them figure it out and they give different strategies and ways they got their answer and they all learn from each other. They amaze me every day with the things that they'll come out with.

Cathy - When I started, I was nervous that, "Well, what if they don't say anything and what if they don't come up with the way I want them to come up with it?" Then as soon as you start doing it, you're like, "It's amazing what they

come up with. I don't have to worry about them doing it a certain way. They're going to come up with all creative ways to do it."

Christina - Yeah, it is very, very scary when you let go of the reins a bit and ask them to just share their thinking, but you have a specific story. I had actually heard this story from Ann Elise, she had told me this about your kids and the cards. I'd love for you to share this story about how amazing kids' thinking is when we can just step out of the way and let them go for it.

Cathy - Yeah. This was probably my favorite day all year and it happened to be the day before February vacation. Typically, the days before vacation, you're just trying to plug away and get to that vacation and everybody's tired, the kids are tired, you're tired. Ann Elise was working with us and we were going to have a math night, so I had reached out to a local casino knowing that they throw their cards away and asked them to donate cards and they gave me six huge boxes of cards and we weren't really sure how much was in there, but we knew we had more than enough to give every kid in the school a deck of cards.

Cathy - The boxes got delivered to my room and I had these 6 huge boxes of cards and I said to the kids, "All right, we're going to do a counting collection today," because we started those in the beginning of the year, too, and they absolutely love the counting collections. I gave each table a giant box and I was like, "Your first job is figuring out how many decks of cards are in the boxes."

Cathy - Then they quickly managed that. They took all the cards out, they arrange them different ways. Some did piles of 20, some put them on 10 frames. I said, "Make sure when you're done, I can tell your total and how you counted it," so they found out that most of the boxes had 150, but there was one box that only had 148.

Cathy - After they figured out the total number of decks of cards that they had, I said to them, "Okay, how many cards do you think are in there?" They looked at me like I was crazy for a minute and they were like, "That's going to be a really big number," and I was like, "Yeah, it's going to be a really big number," because they knew they had 898 decks of cards.

Cathy - I said to them, "How are we going to figure out how many cards are in there?" One little boy liked me. He goes, "Oh, I hope you're not going to ask us to count those. That's going to be a lot." I said, "Nope, we can figure it out without counting." Another student raised their hand and said, "I know there's 52 cards in a deck because of that game, 52 pickup. My brother throws the cards at me and I have to pick them all up." I said, "Okay, we'll go with that number."

Cathy - One of the students goes, "That means we're going to have to multiply  $898 \times 52$ ." I was like, "Okay, how are we going to do that?" They looked around and one of them raised their hand and said, "Well, I know how to multiply by tens and hundreds really easy. Let's pretend we have 900 because I know how to do 900 times 52," and they said, "It's  $9 \times 50$  and then it's  $9 \times 2$  and you can put it together."

Cathy - They quickly discovered that if they had 900 decks of cards, there would be 46,800 cards, so another little girl raised her hand and she said, "Yeah, but we added two extra decks. We got to take those out now." Then I was like, "Okay." They knew how to double 52 to 104 and they knew that they had to take that amount away.

Cathy - What amazed me is one of the girls raised her hand and she said, "Well, we could do, pretend that the 46,000 isn't there. Let's just look at the 800 and take 104 away." I said, "Okay." She said, "Well, I want to start at 804

and do an open number line." I said, "Okay," so I did the number line. We went from 804 to 104 and she said, "Well, that's 700."

Cathy - Then another kid goes, "Yeah, but you started 4 higher than you should have been. You have to go back 4." They quickly were able to subtract and get 698, so they discovered the total number of cards without any help from me. They had 46,696 cards. Never in a million years did I think I'd ask a third grader to solve 898 times 52, certainly not mentally without an algorithm, and they did all of that on their own.

Christina - That's amazing. Yeah, that is not a typical thing we ask third-graders to do, right? That flexibility in their thinking and the relationships that those kids were seeing, that's pretty amazing, Cathy. That is awesome.

Cathy - It was amazing. What I love about it so much is that before math, there was a lot of, sometimes the kids who had the math fear and the, "I can't do it." Nobody looked at me like, "Oh, I can't solve this problem." They go, "All right, let's just make these numbers friendly and we can do this." It's a whole mindset shift for them

Christina - Man, it's so amazing, the empowerment that comes from that. I recently just did a podcast actually about the harmful effects of algorithms and the biggest thing that Constance Kamii talked about in that is that when kids rely upon algorithms, they do not become self-reliant, they become reliant upon these procedures and paper and pencil and the biggest thing I took away from your story right there is those kids are self-reliant. They're not waiting to be told how to solve the problem. They look at that and they're like, "Yeah, we can do this." Who says we can't? Even though it's not something that's in their standards, right?

Cathy - Right.

Christina - That's so amazing.

Cathy - That's been such a shift to build that reliance in kids, because in previous years, that was where I struggled as a teacher because they would sit there and they look at me and say, "Well, what do I do now? I don't know how to do it. Can you do it for me? Can you show me?" I just love that they don't have that. I just look at them and say, "Okay, what are you going to do? What do you know? Let's start with what you know, not what you don't know, and we'll build from there." It's just made such a world of difference with the kids this year.

Christina - What do you think has been the reason? How have you gotten them to that point?

Cathy - I think it's been a lot of building the safety with the number talks. Any answer you give me is okay. There isn't the one right answer. We have stressed that from the first day of school is: "There's multiple answers and multiple different ways to do it and even if you don't get the whole thing, it's okay because you're making progress and to always start with what you know." We tell them, "Mistakes are great. That's when you learn." I mean, if you don't ever make a mistake, then I'm doing something wrong as a teacher because what I'm giving you is too easy.

Cathy - We've also, I've made a big switch to doing a lot more concrete with them and for a longer amount of time. I think as my previous teaching is I would always start with the concrete and move quickly to the pictorial and then quickly to abstract, where now, I do all of them all of the time and let the kids use what works best for them and that's made a huge difference.

Christina - Yeah, I love that. I call that the "sweet spot," where you can have all 3 of them happening at the same time, but kids can... Your third-graders would never be able to solve  $898 \times 52$  if we are expecting them to just do it with symbols in that abstract format, but they totally can when they have the concrete stuff there and then moving into pictures and being able to draw their thinking and model it. It's really amazing how powerful those 3 things can be. Man.

Christina - Okay, to wrap stuff up, because it sounds like there's... I felt like there's a thread running through this the whole time, but I want to see if it's going to be the same answer here. I want to see if you get the same thing. There's a lot of things that people can try. We get pushed and bombarded like, "Oh, try this and try this and try this," but if you were to give advice to teachers who are listening, what's the one thing you suggest that they should try?

Cathy - Number talks have made the biggest difference in my room is getting kids to talk about what they're doing, why they're doing it, and how they're doing it because hearing it from another student, they just grab onto it so much more than when I'm standing in front of them telling them what to do.

Christina - That's awesome. That's what I was guessing you might say, but I wanted to make sure. It sounds like number talks have made a big, big difference for you and the kids in your classroom. Is there a resource? Where did you learn about them? What's been the biggest way that you've built your own understanding of number talks?

Cathy - I started with the Number Talk book. I can't remember who wrote it. It's a big, thick book with a lot of them. For me, that just wasn't working so great for third-graders, so then I get on the Build Math Mind community and the ones that we learned with your Number Sense course have been huge and I use those with my kids. I've added them.

Cathy - In fact, the other day now that we're distant learning, I brought one of them up with the strategies and went through them all so that the parents could understand it, too, because with distant learning, well, a lot of them are sitting with parent, but what I've tried to do is my lessons are all focused on number talks and I always have the kids bring paper to their Zoom meeting so they can record their answers and they hold it up and I scroll through and then I'll call on a kid to answer. It's a little bit slower than they're used to in the classroom, but keeping it all about number sense has really...

Cathy - What's helped the most is we get a lot of pushback from parents not understanding, "Why are you teaching this way? Why don't you teach the standard algorithm?" All that kind of stuff where parents have actually sent emails and been like, "I get what you're doing now. I wish someone had taught me math this way."

Christina - Oh, my gosh. That's awesome.

Cathy - It's gotten the parents on board because a lot of them are sitting next to their kids watching or listening, so it's been helpful that way.

Christina - That is awesome. It's so cool because I think even just the fears of, "Parents are going to see my teaching now," but really, being able to flip the script on that and be like, "Parents are finally going to get to see my teaching now in a good way and help them see the power in learning math this way." That's really cool.

Cathy - Yeah, it's definitely helped.

Christina - That's great. That's awesome. You had mentioned the [Number Talks](#) book. That one, I believe, is by Sherry Parrish, the big thick one. There's a thinner one that's called Making [Number Talks Matter](#). Making Number Talks Matter, I'll link to it on the show notes page also, but it's a thinner book, goes into more detail about the implementation of number talks. Not so much about, "Here's all the number talks you can do," but for people who are starting out, I think that's a nice one. You get to learn a little bit about how to do a number talk in the classroom, questions to ask and things like that. Little more in-depth, too. I'm glad that Build Math Minds and the Number Sense course helped you along that way, too.

Christina - We will end there. Cathy, thank you so much for taking the time to share your experience with all the educators out there. I appreciate everything you're doing and that I love hearing how you're still able to do and build this thinking for students even in this time of distance learning, which can be very difficult to do this way where you're asking kids to share they're thinking and talk. It's just a hard spot to be in, but it's great to see that we can still do these best practices for teaching math, even in an online setting.

Cathy - Well, thank you. I couldn't do it without you and Ann Elise. It's changed everything that I do. I just want to go back to all those previous students and say, "I am so sorry that I didn't know this before."

Christina - I know. I feel the same.

Cathy - Like, "I'm so sorry I gave you that math timed test and the reason you were afraid of math today is probably because in third grade, I made you try to memorize facts and I'm so sorry and I will never do it again."

Cathy - One thing, usually, I'm not big about standardized tests and I think it's a small window and all that kind of stuff, but I am a little bummed that we're not going to have that data this year, because I would have loved to see the difference in my kids from previous years because for 2 or 3 years, I've been dabbling with making these changes, but this year, I jumped in full force. I told Ann Elise I was terrified to start math workshop full force and number talks, but I was like, "I'm just going to do it and see what happens." I would have loved to see the growth in them. I'm a little bummed about that, but there's always next year.

Christina - Yeah. That's right, that's right. It will pay off, even if the testing doesn't. That's one of the hard parts, too, is we do get excited, thinking, "They're going to do amazing and it's going to show their test scores are going to be higher," and then sometimes when it doesn't, it's a little defeating, right?

Cathy - Yeah.

Christina - It deflates you. But you've seen the change in your kids' thinking and even if the test doesn't show it, you know that it's been different this year. It's cool.

Cathy - Yeah, it's just been the best. I could never go back to doing it any other way. I see that they finally are catching number sense, where before I was like, "I know they don't have it. I know they don't get it," but I didn't know how to help them develop it. They really are catching it and it's just amazing to see that with kids.

Christina - That's awesome. Love it, love it.

Christina - Thank you again, Cathy, that was so great to talk to you. Now, if you'd like to join the number sense course that Cathy took or want links to any of the other resources we mentioned, head on over to [buildmathminds.com/60](https://buildmathminds.com/60). Stay safe and stay mentally healthy.

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