A Biblical Perspective of Math

An Interview with Katherine [Loop] Hannon

C2C Podcast Episode #10

Jody: Have you ever considered math is part of our worldview? It's a totally new thought for us, too. But our guest, today, is going to tell us more about how we can teach math from a biblical perspective.

Jenni: Katherine [Loop] Hannon is a homeschool graduate and the author of various resources, including a biblical worldview math curriculum. She's been researching, writing and speaking on math as well as other topics for more than 15 years. Katherine, we are so excited to talk to you today and hear what you have to say. This is a really new concept for us as Jody mentioned and we want to just jump right in.

Katherine: Well, it is such a joy to be here. Thank you for having me.

Jenni: So tell us, Katherine, how can biblical principles transform our views of math and maybe math even transform our biblical principles. Or not principles, but worldview.

Katherine: Um, well, when you stop and you think about, like, why math works, it's sort of easier. I think if you look at science, because most of us are familiar with how science, um... a biblical worldview applies in science. But when you think about it, when you look at a hummingbird or a flower, your worldview determines what you believe about why that flower is there and who created it, where it came from, and how we should approach it. And who gets the glory for it. And it's that same way in math. Um, Colossians 1:16 tells us that for by him, referring to God or Jesus, were all things created. And it doesn't say all things, but math is all things. So, when you think about it, all those symbols and consistencies that we're studying in math, they're describing real life consistencies. So one plus one really equals two outside of the textbook. And that's because it's a way of describing the consistent way that God created things and that he is sustaining them. Um, so really, like, it answers this fundamental questions of "Why does math work?" It works because it's describing this consistencies that day in and day out, a faithful God is holding together. "Where did it come from?" Well, God created it. He's the one who set up this world so orderly and so predictably, we can call one plus one equals two a fact and rely on it no matter where we are or what we're doing. "How should we approach math?" Oh, go ahead. Sorry.

Jody: No, no, no, I w- as you're talking, I'm just thinking about how we, we lightly say we talk about coincidences and there are none and you know, I'm sitting here, I'm like, you know "Wow, this is so profound when you think about it like this." And you're right, I've never thought about math in that way. I just.. I don't know. I think math was just a structured thing that we created, but we didn't create it at all. We discovered it.

Katherine: Right.

New Speaker: I don't want to interrupt your thought. Go ahead. You're saying such great stuff.

Katherine: Yeah. No, no, no, no. I appreciate that. 'Cause when you, when you say that we created it, it's really a naturalistic idea that's coming across in math. And I was homeschooled in a Christian family. My mom had no idea anything non-Christian was coming across in her math curriculum. We just thought it was neutral. But when you look at the fact that glory for math's ability to work is going somewhere, and if it's not that God created it and he's getting that glory, then it's going to man or math itself. And it's really a naturalistic or humanistic idea, because those consistencies in math, they describe real life consistencies. So, if you say math's just this self-created or man created it, you're really saying that those consistencies all around us were just stuff-created or man-created.

Jody: Wow.

Katherine: So, it's like that same worldview battle that we see in science, but it's in math just in a more disguised way.

Jenni: That's fascinating. And then we give people credit for, um, creating theories and...

Jody: Solving math problems.

Jenni: Solving math problems, right. Even finding- Figuring out math, you know, figuring out that there is a problem in the first place. Um, but really at the end of the day, it's just man uncovering what God's put there and probably only small portions of it.

Katherine: Right. And the fact when you think about how many different tools in math we need, you know, you've got calculus, you've got algebra, you've got all these different concepts, and it's because creation is so complex that it takes all these different things just to begin to describe the complexities that God's made that he spoke into existence. Um, so, like, when our head spins over math, it should be spinning over, "Wow, God, you are an amazing God."

Jody: So, do you think- Like there's, um... I mean, there are Christian math curriculums. Like my oldest is 31. I mean, we've been homeschooling for a long time, but you know, I mean, and there are just public school math and you know, we've got the common core issue and all that stuff. But I'm just sitting here thinking, I don't recall in a math curriculum, even in the Christian ones ever bringing it back to God. I mean, which is interesting now that I think about it. I'm like, "Why didn't they?"

Katherine: Right. So, most Christian math curriculums just add a Bible verse at the top of the page, but don't really change the math itself.

Jody: And now it's Christian!

Katherine: Right. Um, and I thought that's all that you could do with math for years. I mean, growing up, I thought, "Well, how would you teach division from a biblical worldview?" You talk about how God divided the red sea. I mean, what else can you do? Or you could have a Bible word problem in there.

Jody: Okay, so how do you? How do you do that?

Katherine: So for every concept, if it real- if math is a way of describing what God created, then you want to show the student that. So you're teaching it as a practical tool. You're showing them how to apply, how it really does describe consistencies around us and how, mainly reminding them, that that's because there's a faithful consistent creator. So you're teaching it as this practical tool, so to speak and um, and really showing them that as they go through.

Jenni: So, take us through like a mini, let's say a division lesson, just to give us an idea. Like, how would you approach that? What words would you use if you were trying to, um, reveal God through division?

Katherine: Okay. Well, there's different.... It would depend on the age of the child, obviously, how much you go into. But, um, you can start by just rather than rotely saying, "Here's your division facts, memorizing them." You're going to show it through, like, real life manipulatives. Um, you can use beans or toy cars or whatever you've got on hand, but show them how, and we, you know, when we take, say it's 20 divided by two, if you take 20 and you divide it up into two piles, you have 10 in each pile. And because God is so faithfully holding all things together, we can memorize this. And so next time you're not going to have to count it out. And then when you get into the algorithm or the step-by-step process to do, like, long division on paper, again, rather than just teaching them rotely, "This is how you do division.", you're going to help them see how that's really describing what's happening, um, through manipulatives, um, and then how that the step-by-step process is just keeping track of place value for us, so we're not having to think it through every time. And the idea being that God made man in his image, he gave us the task of subduing the earth. So we're capable of developing methods to help us describe and explore his creation and these consistencies around us. And our long division algorithm is just one way. There are other, you know,- It was fascinating for me when I went back and researched, um, for my writing the history of math, because prior to the middle ages, paper math wasn't what it is today, because paper wasn't readily available and as paper became more readily available, there were different methods to do long multiplication and division. You know, our current method is not the only way to do long division. And so, it can be helpful for students to understand that and see that. So they're recognizing, "Okay, this is just one tool, one step-by-step process that helps us keep track of place value, so that we can accurately describe God's creation without having to rethink it through every time. And we can do it, because God gave us that ability to subdue the earth and to think his thoughts after him. And in a limited way, it's borrowed from Johannes Kepler. Does that make sense?

Jenni: Oh yeah. Oh yeah. In fact, I think it's fascinating. So tell us, Katherine, how does your program work? How does your math program work?

Katherine: Okay, one more thought on division.

Jenni: Yes. Please, yes!

Katherine: So, you can also then have them apply it. You know, have them, um, actually use division outside of a textbook in different settings. Um, but the program, uh, that I have right now, is for Junior High and it's designed to be self-studied and the student reads and everything is taught from this perspective. So,

they're learning why things work, how they're really describing God's creation, being reminded to praise the creator, getting to apply it in real life. And when they get to pre-algebra, you know, instead of just learning all those Ys and Xs and wondering why in the world am I dealing with letters now, there's like example meanings so they can understand, "Oh, this could be referenced this or this or that or this." When they graph, you know, "Why are we graphing all these lines?" Well, it's because it represents real-life relationships around us, like the relationship between the power and voltage in current flowing through an outlet, which is so.. God holds it together so consistently we can describe using letters, how it's going to operate and then be able to plug in any value for a particular situation and know that that relationship will still hold. So all of algebra, is just like only possible because of that consistency. So, it's showing them that, um, and it's designed, like I said, to be self-studied. Um, I designed it with homeschoolers in mind. So, the student reads a lesson and then they work a worksheet and the worksheets are not filled with a bunch of meaningless problems. I tried to keep it a shorter number and make them more meaningful because I think if a student really understands what they're learning, they don't need to do a whole bunch of empty book work to get through it. Right. Um, so as they, you know, as they study, they're looking at music, they're looking at math and music, they're applying math to art...

Jody: That's awesome.

Katherine: ...they're looking at God's creation and there's optional video supplements to go along with it for those who need like a video or audio component to it.

Jenni: So you would call this kind of a pre-algebra level?

Katherine: So there's two books: The book one is kind of grade six or seven, it's like firming up arithmetic and, um, you know, making sure they're ready for the upper-level math. And then the book two is the pre-algebra and then I'm currently writing an algebra two right now.

Jenni: Okay. Oh, awesome.

Jody: So, how long have you had your program out? Is it fairly new if you had it out for a while?

Katherine: It's been a couple of years. Um, came out in 2015.

Jody: Wow. Okay.

Katherine: And we've heard lots of really good feedback from people who hated math and now they love it. And a lot of it is just because, you know, if you taught your child how to cook from a textbook for eight years, they would think they hated cooking too. You know, they have to get in the kitchen and actually cook. And yet, that's what we do in math. We just throw a textbook at them. And those kids, unless they go on to study math and in college, they don't ever really get to the point of like, "Why am I learning all this stuff?" Especially in the upper levels. And of course they're gonna think they hate it. They- It doesn't make sense. But when you connect it with God's creation and why we're learning these different things, then it can make a difference.

Jenni: We've now seen, um, a few times kids who not only hated math, but were absolutely convinced that they couldn't do it, that their mind just didn't work that way, that they were broken in a sense. And then something happened. They were introduced to something that finally made sense. The light bulb went on. And that same student, um, not only went on to love math, but worked in the math field. And it's been a story that now we've heard a few times. So we're thinking that there has- you're right, there has to be something in the teaching method that's creating this epidemic of "Math is terrible. Math is hard. You're either good at it or you're not and there's no fixing it." What do you do for- What would you recommend to a parent for a student who just isn't getting it?

Katherine: Um, well I would start by seeing if it's being taught in a way that is really showing them why they have to learn what they're learning rather than just cutting across as meaningless book-work.

Jody: That's a big question. I'll tell you what... Right. And I'm laughing, because every time I've done math with my kids, they're like, "Why do I have to know this? I'm never going to use this." You hear all the time. It's, it actually makes me sad, because I'm like, this is something that seems to be the core that it's a core subject in every school in America and every other country and our kids hate it.

Katherine: Right. Well, and I grew up wondering why, too. And I'd ask my mom and she's like, you know, "Just do it. You need to." But, like, if we apply that same thinking to, you know, if you're teaching your child how to drive a car and you never actually let him get behind a wheel, they just studied a textbook. They might think they hated driving too, you know, like...

Jenni: And that they couldn't do it.

Katherine: Right. Where as if you're- When you teach them how to drive, you put them behind a wheel and you show him how to drive. When you teach them how to cook, you let them get their hands dirty in the kitchen. When you teach them math, if you let them actually use math and see math and what it's purpose is and see how it's pointing to the creator, it makes it take on a whole new meaning that way. Um, and then obviously, there's always sticky points with any subject, really, where you have to just kind of pray through, "Okay, what's going on here? Is this- Does the student just need to wait on this concept?" You know, "Are they not mature enough to understand it yet? Is it something in the presentation? Is it just an attitude we have to work through?" Um, you know, there's always underlying things, too, but I've definitely found that when it's taught in an understandable way, um, it makes a lot of difference for people, which would make sense. The biblical worldview... I mean, you can teach math practically without teaching it biblically, but if you.. Just like you can wear a police uniform without being a policeman, right? But, if you're a policeman, you will use the police uniform. If we really see math as a way of describing God's creation, then we would want to teach it that way and it makes sense and it does help the student get it.

Jody: Wow.

Jenni: Wow. I know, my head spinning, I'm thinking I have so much- so many new things to think about. Um, Katherine, do you have any parting words that you want to leave with our listeners?

Katherine: Um, just a couple. One, I forgot to mention when you asked about the curriculum, I also have like a guide book for those with younger students to just help you go through the different concepts and it gives ideas of how to present them in a biblical way. Um, it's not a full curriculum, but just kinda goes alongside that. So, there's other resources on my website that are available for people. Um, but I wanted to end with my favorite verse, um, regarding math. It's Jeremiah 33, 25 and 28. Sorry, 25 through 26 and it says, if my covenant be not with day and night, and if I have not appointed the ordinances of heaven and earth, then will I cast away the seed of Jacob and David, my servant. And other translations translate ordinances like fixed laws. It's the idea of those consistencies that are all around us, which addition, subtraction, multiplication, division is describing. Um, and here, God's saying, "Look, you can see that I'm a consistent God based on what I've created. And math is part of that. I will be just as faithful." And here, he's talking about his covenant with um, Jacob and David. But it- All of math is shouting out at us that God is a covenant-keeping God, that he keeps his word, that he is faithful. And every time you solve a math problem and see that it still works, it's shouting out at you that you have a God you can trust and you can rely on everything he says in his word. And so, I just encourage parents, don't lose the opportunity to show your child that as you're teaching them math.

Jody: Katherine, share with our listeners where they can find you.

Katherine: Oh, I have a website, christianperspective.net, and there's a way to sign up there for like a free video that goes into some of what we talked about a little bit more, too and some blogs I sent out periodically.

Jody: Awesome.

Jenni: Yeah. And we'll make sure that we link to that in your show notes and also link to you on your social media.

Katherine: Thank you.

Jenni: Thank you so much, Katherine. We are absolutely sure that you have given everyone listening some new things to think about. 'Cause I know Jody and I definitely have some new things to think about.

Katherine: Oh, good. Thank you so much.