AJR - Robin Ward Transcript

0:00:01 - Intro
Julie Ryan, noted psychic and medical intuitive, is ready to answer your personal questions, even those you never knew you could ask. For more than 25 years, as she developed and refined her intuitive skills, Julie used her knowledge as a successful inventor and businesswoman to help others. Now she wants to help you to grow, heal and get the answers you've been longing to hear. Do you have a question for someone who's transitioned? Do you have a medical issue? What about your pet's health or behavior? Perhaps you have a loved one who's close to death and you'd like to know what's happening? Are you on the path to fulfill your life's purpose, no matter where you are in the world? Take a journey to the other side and ask.

0:00:42 - Julie
Julie Ryan, welcome to the Ask Julie Ryan show, where we combine spirituality and practicality to help you live a life full of joy and purpose. Today we have Dr Robin Ward on the show. She's a math professor at Rice University and is on a mission from God to help change the way that math is taught in our schools to our little boys and especially to our little girls. We talk about how numbers are God's universal language, how angels and other deceased spirits and loved ones teach us and notify us that they're around us through numbers, and we talk about how numbers have been used since the beginning of time as a way for people to communicate with one another. It's a fascinating conversation, one you're sure to enjoy, so join me as we go talk with Dr Robin Ward. Robin, welcome to the show, I'm so thrilled that you're with us today.

0:01:46 - Robin
Thank you, Julie. I truly am humbled and honored to be here. Just super excited.

0:01:52 - Julie
Oh, wonderful. Well, it seems to me that you're on a mission from God to help people learn math, and help children learn math, and, on the side, their adults are going to learn it through them. How did that get started? Where's that coming from? I mean, you are so passionate about this and your techniques are so fabulous and so different from anything that we're used to. Where did this all start?

0:02:24 - Robin
Gosh, wow, that's a wonderful question and I actually have a very direct answer for it. When I graduated college, I worked for about seven years in aerospace engineering and I still remember the office I worked in. There were about 60 men in there and the only other female in the office was our office assistant. So you know, we're going back 25, some years ago, where you know mathematics and the science professions. They were very, very laden with mostly men. You didn't see a lot of women in math and when people would find out that I worked as an aerospace engineer, I would.

I joked that I would get their math confessions where they're like oh I was never good at math and my mom wasn't good and my dad wasn't good, so I'm not good. And just over the years I started to get kind of troubled by the fact that so many people just didn't like math, didn't have positive experiences with it. But I did and I loved it and I found its beauty and I found it magical. And so after working in aerospace for seven years, I kind of got that bug that I guess that I'm like.

I think I really want to teach and I wanted to go back to school to try to understand why do some students love math, why do others? Why don't others enjoy math? Why do some struggle, why don't others? So I wanted to study kind of the teaching and learning of mathematics, the psychology of mathematics, to figure out you know what's going on and

what can I do so that everyone shares that same passion and exuberance and excitement. When I see something mathematical, you know come across my screen, or you know, when I encounter it in daily life, I just I think math is everywhere around us. It's in, it's beautiful, it's in nature, architecture, it's music, it's everywhere. So how can I get more people to turn and kind of tune into mathematics and hopefully kind of uplift them?

0:04:38 - Julie
Well, one of my favorite movies is Contact from 1997 with Jodie Foster, and in the movie there's a schematic for an intergalactic. It's a sci-fi movie, intergalactic space vehicle basically. And when it's downloaded it's downloaded in numbers, in digits. So are numbers the universal language like. Is that the root of everything is that, how, spirit, god, the universe, whatever connects with us to, and then we kind of go through a transmitter or a translator in our brains so that it comes in in a way that we understand it. Does that question make sense? Sure?

0:05:23 - Robin
I mean, I would argue that mathematics is at the foundation of everything Humans, nature, spirituality. There's something called, for example, the Fibonacci numbers, and it's this particular pattern that anyone in mathematics knows about. And these particular numbers show up everywhere in nature. They show up in petals on a flower, they show up in the keys on a piano. You know, when you think about spirals, a tornado is a spiral, the snail shell is a spiral. There's so many things in nature and in our world that at the root of them are indeed numbers and patterns. So it's hard for me, I mean, for me it's so easy to see them, but I just think we just have to make people more aware of that.

0:06:19 - Julie
Well, and I wonder if that's just the way that spirit or God or whatever you want to call it. I call it spirit and that means God and all of our angels and deceased loved ones and saints and the whole nine yards, that's how they communicate with us. People will say, well, I see angel numbers, I see 444 on a license plate, or I'll look at the clock and it says 444. And 444,. And then I go to numerology and I think, okay, that's 12. One plus two is three. Three is the number in the Bible for divine perfection. So people tell me all the time that they see these numbers and they believe they're a sign from their loved ones, and three is a Fibonacci number.

0:07:03 - Robin
So there you go their loved ones, and three is a Fibonacci number.

0:07:06 - Julie
So there you go. Yeah, what is a Fibonacci number? Explain more about that.

0:07:10 - Robin
I've heard the term, but I'm not sure what it is, there was an Italian mathematician whose last name was Fibonacci, and he came up with this sequence of numbers, and so if you want to jot them down, the pattern is you take the two previous numbers and add them together to get the next number. So the Fibonacci numbers start off with one, and then the number one again, and one plus one is two, two.

And then two plus the number in front of it, which is one, is three, and then three. We add the number in front of it which is one is three and then three.

We add the number in front of that and we get five, and then five plus three is eight. So it's this recursive pattern where you're always adding the two prior numbers together to get the next number in sequence, and it's just in the golden ratio, the golden spiral, and many, and, like I said, in nature, and like you said, the Trinity is the number three, that's a Shibinachi number.

0:08:13 - Julie
So yeah, well, my other favorite Bible number is seven, which is spiritual perfection. Three and seven are my favorites. And then what's three and seven? It's one, one is source, and then I would say, is seven a?

0:08:28 - Robin
Fibonacci number two. No, it goes from five to eight, so we skip over seven. But I would argue that three and seven are prime numbers, and prime numbers are very interesting numbers in and of themselves. There's an infinite number of them. There are computers now that always try to compute the next biggest prime number. So I just think there's kind of magic in just about any number that you could come up with.

0:08:55 - Julie
I agree, and I am not a math whiz. I was intimidated by math my whole life and story goes that I came home in the second grade at the age of seven and told my parents that I didn't need to know advanced math because I was going to hire somebody that knew how to do that and they were going to work for me. And guess what I did? And I've done it nine times at all of my companies. So I understand what I need to understand, but it was always intimidating to me. So it's fascinating at this phase in my life that I'm seeing how numbers, spirit communicates in numbers and symbols. And a number is a symbol, certainly for something it's seven of something. And I think it's fascinating of something. And I think it's fascinating when I do telepathic communication with spirit, a deceased loved one, god, my spirit guides my angels, somebody, perhaps a client or somebody who's called into my show.

What I believe is that I'm on a frequency like a megahertz. Frequency like a megahertz that is similar to a radio station and our heads are big satellite tissues and they receive and they transmit frequencies. So you want to listen to country music? You're on 102.4. And you want to listen to classic rock. You're on 97.5. Different, five different frequencies on which that music's being broadcast. Is it feasible that when I and others are communicating with spirit, that that is, numbers like in the movie Contact being downloaded and then we translate it in our brains in less than a nanosecond into the language that we understand? Is that feasible? I think so.

0:10:51 - Robin
I would agree with that and you know, I think about. You know, when we talk about angel numbers and symbols and we're operating on similar frequencies in math, think about all the symbols that we use to communicate mathematically greater than or less than sign. When we talk about frequency, we think of sign waves that go up and down or seismic waves, and I just feel like there's just such an interconnectedness with number symbol spirituality. I love how you brought up the angel numbers, so I kind of see them as all in one big sphere interacting with one another.

0:11:32 - Julie
Yeah, well, so numbers are around us all the time. How can being cognizant of numbers in everything that we perceive, how can that help us live a life of purpose and joy?

0:11:47 - Robin
I think if you see any number or symbol repeatedly, someone spiritually is trying to communicate with you, and so I think it should serve as a catalyst for us to pause and go. Okay, why do I keep seeing this, and what might it mean? So I think it might just be our spirits, our angel guides, saying pause, this number keeps showing up, these symbols keep showing up. There must be something bigger that we need to plug into.

0:12:17 - Julie

Yeah, I agree, okay, so. So let's go to the math, how it's being taught and all of that. Why is it that? It seems like the perception that women are incapable of doing advanced math. Where's that coming from, and how has that been propagated throughout the millennia? It's nonsense, in my opinion. I mean, I'm not a math girl, but you are, and so you're a girl. I'm a girl. Do you know how to do advanced math? Where'd that originate? Where's that come?

0:12:58 - Robin

from. I'll probably say that from the beginning of time women were kind of relegated to the home space and the men were the ones going to college and in the workplace. And then in the 50s and 60s, with the female revolution, we were getting more women in the workplace and now I think now there are more women attending college than men, which is great. So I think, slowly but surely, we're seeing women, more women in the workplace and in STEM careers science, technology, engineering, math. But what is fascinating is I can't quite figure out where this stereotype comes from, that boys are good at math and girls are not. Boys are good at math and girls are not. Outside of my faculty position at Rice University, I host math camps at my house and I love working with young girls ages four through about fifth grade, and I set up these camps. The girls come over and we explore mathematics using the visual arts as a lens, and when I'm working with these girls the camps are as much about them learning some mathematical content. Maybe we're focusing on fractions that day, or counting or estimation, but I love to kind of tune into their attitudes and affect and dispositions towards mathematics and so I'll ask the girls you know, what do you think about math class? Ah, is the response I get. Yeah, and I often think if I did math camps for boys, would they be saying the same things. And I would say almost always, when I work with these different groups of girls and again their ages, say four through about 10 or 12, almost always they tell me the boys are better at math than the girls. I don't like answering questions in math because I'm afraid I'm going to get it wrong. So I don't know if it's some terrible genetic programming gone wrong, but it's so funny that even now, in 2023, 2024, that these young girls are already thinking they can't do math and the boys are better. So that's why I'm so excited that I can offer these camps because, like I said, as much as I want the girls to get excited and interested and passionate about math and to learn it, I want them to see themselves as a mathematician and to have that confidence in doing mathematics.

One other really fun activity I've done in years past when I was working and teaching at the college level, working with students who were in their junior and senior year. They were education majors and I would be teaching these what are called math education courses, so essentially presenting the content that these students will ultimately have to teach to either elementary, middle or high school students and, more importantly, pedagogy and how to best teach these different concepts and skills. And I'd love to start off the semester with an activity where I ask my students to take out a piece of paper and take about five minutes and sketch. Five minutes and sketch sketch. For me, a mathematician, I would say maybe one or two students out of a class of about 20 or 30 would draw us email.

All of their mathematicians were these Einstein looking men with the crazy hair and the pocket protector, with the calculator, and most of the mathematicians weren't dressed very fashionably. You know, they were kind of the nerdy look and holding a ruler and behind them might be a chalkboard with all these crazy intimidating formulas. So there's this strange perception of what a mathematician is and what a scientist is, and I want to work to dispel those myths because a mathematician can be a female and he or she can be a very fashionably dressed individual as well. So we just have these underlying stereotypes that you know, and we have them in many fields. We just need to chip away at them.

0:17:23 - Julie
Well, I think that's part of your purpose. You know your mission from God that you've chosen to accept, and we have a lot of women who are moms and grandmothers of girls who listen to this show and watch this show, which is one of the main reasons why I wanted to have you on, because you're working, in my opinion, you're on a spiritual mission to help these girls and boys, but especially the girls, learn how to do this and dispel this and disprove it, and do it in a way where it's fun, because most kids, when they think of math at least the ones that I talk to, even now, and even when I was in school, perhaps you as well we'd have a bunch of worksheets to do. It was just boring. It was boring, boring, boring, and so I don't know if that's still how they're doing it. My guess is it is in most cases.

0:18:20 - Robin
Quite often, I think, especially in elementary school Quite often, I think, especially in elementary school, teachers tend to teach the way they were taught. Most elementary teachers that I've worked with over the years and the research will tell us this as well most of them want to teach kinder first and second grade because they don't want to teach the higher level math in third, fourth and fifth grade because that means fractions, decimals, percents and just more difficult mathematics. So they want to kind of stay with the easier concepts and skills. And I would argue that in kinder first and second that's where we need the brightest and the best of our teachers, because that's the foundation and that's where we develop these underpinnings, our teachers, because that's the foundation and that's where we develop these underpinnings. But even you started off, I was never really good at math, and thank goodness.

0:19:17 - Julie
I've got some math people around us and there were all men, all the guys that I've hired in 30 years working for me. There is a CFO or whatever. Have all been men, not one woman. Not one woman came on my radar to hire?

0:19:32 - Robin
Yeah, and I would argue that anyone can learn anything, no matter how simple or complex, if you have a really good teacher who can bring that concept of skill to life, teacher who can bring that concept of skill to life and the teacher also kind of getting back to your worksheets, I think it's critical that a teacher allows the child to learn by doing. That was something John Dewey, the famous educator and philosopher, said students learn by doing. I think about the times that when we first moved to Austin, Texas, and I would be a passenger in the car and we'd be driving out to the airport to pick up somebody and then, after being a passenger in the car several times, I had to go out there one day on my own and pick up my sister and I had no idea to get there, how to do it, because I wasn't doing it. I was just kind of a passive observer. And that's what happens in the math classroom we just give you know.

Too often I feel like students will just be given worksheets and they're just kind of they're not actively engaged in their learning. They need to discover. We need to give them the opportunity to look for patterns and make guesses about. Well, maybe this is what the formula is, after I try some different things out. They have to be active learners and I had to become an active driver to figure out how to get to the airport and learn by doing it myself.

0:20:57 - Julie
Well, good point, people who take my class to learn my buffet of psychicness. Once you connect with spirit, you can do it all. You talk to dead people, you talk to spirits who are attached to a body pets, trees, past lives, medical stuff, whatever how close to death somebody is, and it's a matter of doing it. You can listen to a lecture, and that's why we have practice groups. I say this is going to come in when you practice it. If you learn how to throw a football, it doesn't mean you're going to be an NFL quarterback without lots and lots and lots of practice, and it goes with everything, I think. A couple of other points, and then I want to get

into your amazing techniques that you're teaching the teachers so that they can teach the kids. Number one when my son Jonathan, who's now 31, when I was pregnant with him, there was a baby shower for me and my girlfriend gave me a book called how to Teach your Baby to Read and it talked about that. The neural pathways in the brain were not developed enough for an infant to read, but certainly they could see symbols, like they know McDonald's and they know a Coke bottle and they know Bert and Ernie and stuff like that. And so I made these flashcards. I still have them, probably I don't know four or 500 of them, and it was two inch wide marker, like a you know marks, a lot wide marker, two inch uppercase, one inch lowercase, and you show it to the baby for a second and you have the word written in the upper right-hand corner. Well, I did that with Jonathan, starting when he was like maybe a year and a half, when he was in his high chair, and we'd play this game. Well, by the time he was two and a half we were making silly sentences. This game we called Night Spread, all the words on the family room floor and he could sight read all these words by this point, like mommy, daddy, truck, dog, whatever, and we'd make silly sentences. By the time he got into school and phonics was added to the equation, he was reading the newspaper at five and that was during all the Clinton, Monica Lewinsky mess, so I had to keep the front pages away from him, so he read the sports page and now he's in the sports business.

The other thing that was a piggyback off of that was how to teach your baby math, and I still have these cards. It was by a guy named Glenn Dolman, d-o-l-m-a-n. Like 40 years ago and it's a bunch of red little dots, like a dot. You'd put a sticker at a garage sale and the number was on the back and it would be seven dots and I'd say seven, 14, 85, whatever. And this guy's premise was that we were laying neural pathways in the brain for these little kids. That seven is not a numeral, seven is seven of something. It's a concept which was a totally new concept for me. And this Dolman guy was taking brain injured children within a few months who were the doctors were saying institutionalize them because they'll never be able to live a normal life. He was getting like four-year-olds reading at a third grade level within a matter of months using these techniques. Does that make sense to you? I know it worked with Jonathan.

0:24:34 - Robin
You know it's funny. Years and years ago I remember a colleague coming to me and he just read this article about how babies, like as early as like three or six months, could discern changes in quantities of things. So they were calling it. You know, babies can do math and it was more about. You know, I don't know if they had little electrodes on the baby's brains or if they measured something about eye movement, but if they held up, say, a picture of two dots and then a moment later held up a picture of four dots, they could discern that there was a difference between these two things, because they were able to compare and analyze and discern.

That's what I saw with Jonathan. Yeah, absolutely, I think, as soon as that baby's born, or even when they're in utero, hook up the earphones and let them listen to classical music, their little speeches. Sure, I think, as early as possible. You're built to observe and see the world around us. So I think, and like you said, you're teaching words and I love how you make silly sentences. That's a beautiful, that's a fabulous, fun activity. But early teachers we can students or young individuals, babies they can start understanding mathematical concepts.

0:25:56 - Julie
Yeah, it's fascinating to me. You tell students and teachers to put on their math goggles. What's that?

0:26:04 - Robin
mean. So I feel I get so excited when I think about mathematics. And I teach mathematics because I'm looking around the space that I'm in right now and I can see math in everything,

whether it's shapes or patterns or there's a number of things. And so I think when you can find, when you learn something new and there's a connection and there's some kind of meaning behind it, it's going to become more enjoyable to learn about, because you're going to be like oh okay, I get what that means, because you can make some kind of a personal connection.

And so I was going into classrooms and whether I was working with my students or working with practicing teachers and we were co-teaching a lesson, I would always start off by saying all right, everybody, let's put on our math goggles and let's look at life through the lens of mathematics, because it truly is everywhere. It's what we started off by saying and Julie, you really said it. I mean math is. It's in the physical world and it's in the spiritual world, it's everywhere. And how can we pause and reflect and really just look for it?

I think too often we're busy and we're running and we don't take enough time to reflect and to look. So I was always saying put on your math goggles. And one time one of my students joked with me and said you know, dr Ward, you say that all the time. You ought to trademark that, and I thought I think I will. So, sure enough, that's what I did. So whenever I do a professional development workshop or if I go into a classroom, I say okay, let's put on our math goggles and look at life through the lens of mathematics, or look at art through the lens of mathematics. So that's where the math goggles came from.

0:27:48 - Julie
All right, and then you tell teachers when you're lecturing and you teach your college students who are going to be teachers don't say anything. Talk to us about that. What's that all about?

0:28:03 - Robin
I always tell my you know, the education majors I teach, or the practicing teachers don't tell your students anything. Students have to discover. And it kind of goes back to the what we talked about earlier. John Dewey, you've got to learn by doing, I think about. I could probably ask 10 high school seniors you know what is the area or what is the formula for the area of a rectangle? And they would probably all tell me area is length times width, because they were told that and they had a worksheet and they practiced. But if I ask them why? Why is it length times width? Why isn't it length plus width? Why isn't it length divided by width? Why is it times?

I don't think we spend enough time as teachers letting the kids figure out the whys. We just tell them what to do. Plug in here, here's the length, here's the width, you can get area. So that's an idea of don't tell them anything. And so for going back to the example of you know the area of a rectangle is giving students some examples of rectangles and letting them go okay, well, if we know it's, you know three squares tall and four squares long, how many squares fit inside of this rectangle? Oh, there's 12 of them. Okay. Well, now let's draw a rectangle, and maybe it's two squares tall and six squares long. Well, how many squares are there all together? Oh, there's 12. Oh long, well, how many squares are there all together? Oh, there's 12. Oh like, do we notice a pattern? So I want students to discover and go oh wait, four times three is 12 and two times six is 12. Let me draw another rectangle, and maybe it's 12 squares tall and only one square wide. Well, there's 12 squares all together that cover that whole rectangle. That's area. Oh, the formula for any rectangle must be length times width.

So it's letting the kids discover, because ultimately, what happens is the students will get in front of a standardized test and a question will come up. You know, compute the area of this rectangle and they look at it and they go ah, what was the formula? Was it length times width? Was it length divided by width? And because they have to draw upon a formula that they wrotely memorized as opposed to experiencing it, it's going to be more likely if they experienced that formula, discovered it for themselves, they're going to remember it better.

So that's what I say Interesting. Let them come to the conclusions and provide, you know, facilitated guidance as needed so they don't go off on, you know, wild goose chases. But yeah, let them discover. There's nothing better. Do you find that they do? Do they discover? Sure, and sometimes you have to nudge them a little bit and you provide them with the guidance because you know, ultimately you want them to come up with length, times, width.

But it's when students experience that aha moment. It was like oh, I made it to the airport, I didn't have to use my map, I figured it out for myself. You feel so rewarded. It's a wonderful feeling and that's what I want kids to feel. Otherwise, they're just plugging in numbers and coming up with answers and then they might end up with 27 as an answer, and perhaps the answer should have been four, and we need to encourage that. Assess your answer for reasonableness and if they've had that experience of drawing pictures and looking for patterns, then that's going to help them when they get their answer to go. Oh, this does make sense, this is right.

0:31:44 - Julie
Well, and I think too that we not just in school but in life we think that things need to be done a certain way period or it's not going to be a successful outcome. And I have found this in the classes that I teach, because a lot of people that teach this woo-woo stuff. Well, you got to meditate for an hour first and raise your right arm and hop on your left foot and twirl four times before you can connect with spirit, and you got to be able to see it, or you got to be able to feel it, or whatever. My feeling is how's it come in for you? Let's use how it comes in naturally.

It's kind of like who cares if somebody is a left-handed child and the teachers used to make them write with their right hand? Why does it matter? Who cares? They're writing and that's the important thing. And I would think that in what you're talking about with figuring out how to calculate the size of a rectangle or the diameter or the area inside or whatever, that children will come about it in different ways based on how they learn. Some are visual learners, some are kinesthetic learners, some are auditory learners and certainly I know that comes into play a lot in the stuff that I teach in the spiritual world. How much does that come into play in how you teach?

0:33:10 - Robin
That's a wonderful question, julie, and you're right, your audience learns in different ways and the same thing in mathematics there's always multiple ways to get to an answer. There's a really interesting piece of research that talks about these things, called the five representations in mathematics, and what the researchers have said is that if students have access to and have an opportunity to use one or more of these representations, it's highly likely that their mathematical understanding of that concept of skill will be deepened. So, for example, when we're talking about we'll go back to the area of a rectangle you know we hear this word area In math there's a lot of vocabulary. You know we hear this word area In math. There's a lot of vocabulary. And for some kids they hear the vocabulary and they can understand what area means. So there's this. There's a verbal representation. Some students need a visual representation. Well, what is area? Well, let me draw a picture, because some might need some kind of visual representation to understand the concept better. Some students get A equals L times W. That's the symbolic representation For some kids. When you're teaching area, they can look at that formula and know exactly what it means. For other kids it's letters, and what are letters doing in a math classroom. So that's another representation, the symbolic representation.

My favorite representation is the contextual representation, where we put the area of a rectangle into a familiar context to which students can relate to.

Whether we're talking about, you know, we're going to be painting a wall, we're making a garden, those kinds of things, and we need a context to understand what this word area means. And finally, what I also love are using math manipulatives, which are physical representation. And how can we construct, using cubes, what the area of a rectangle might look like, using blocks or something like that? So just like when your audience comes to you and you are teaching them different ways to tune in to their angel guides, because people hear and learn differently same thing in mathematics. Some people need symbolism, some need a picture, some need a physical manipulative, a real life context, and I think the more ways that you can present a concept or skill just like me with math and you with, you know, contacting our loved ones the more ways that you have available to you, the more likely you are you will succeed in understanding that concept or connecting and to that angel guide or to the spirit. There's's just different ways to get to the ultimate answer.

0:35:58 - Julie
You've written a bunch of children's books. What six so far.

0:36:02 - Robin
Yes, ma'am, I've written several books for teachers on using children's literature and the visual arts to teach K-8 mathematics. So how can we bring reading and reading comprehension and pieces of children's literature into the classroom so that when we are using this vocabulary math, which is cumbersome we talk about parallelograms which is a hard word for a fourth grader to pronounce or planes and spheres you know what are these things, but when they're couched within a story with illustrations, children are more likely to be able to understand these concepts and skills. And so, beyond that, I've also written several counting books for students, for young people, for young readers, to get them interested and excited about. I write about different universities, but again, I've got pictures in there to represent the different numbers on each page. The number is written on each page, so you see the symbol, you see a context, there's visual drawings to support what that number is. So I even use those different representations in my children's counting books.

0:37:10 - Julie
Can you give us an example of using children's literature to help a child understand, like a parallelogram or a isosceles triangle or something like that? And then I know you use art a lot, so give us an example in literature and then if you could give us an example in art again for everybody listening to this. This is important because we can use these techniques that Robin's using. We can use it with our own children and grandchildren to help them, because they're just bored out of their minds doing worksheets at school and the teachers are teaching to whatever the state and the federal requirements are instead of. Really. That's my opinion. I'd love to hear your take on that as well, but I'd love to hear examples first.

0:38:02 - Robin
Sure I'll give you. I'll mention one of my favorite books. It is called how Much Is a Million. It's by David Schwartz. He's a fairly prolific author. He's written other books. It's by David Schwartz. He's a fairly prolific author. He's written other books.

But how Much is a Million is a fabulous read for young students. And it puts one million, one billion and a trillion into a familiar context. So it says you know how big would a fishbowl be? Let me start again how big would a fishbowl need to be in order to hold a million fish? And you turn the page and you would need a stadium that holds 100,000 people in order to hold 100,000 fish. And you know, if we stacked a million students, you know, on top of our shoulders, our shoulders would we reach the moon? Would we need a billion students stacked on top of each other? So it puts really big numbers which are important to understand when you think about our deficit, which is in trillions. And students need to understand big numbers

when it comes to mortgages and credit cards, understand big numbers when it comes to mortgages and credit cards. It puts these really big numbers into a familiar context.

I go back to those representations with these beautiful visual drawings, these illustrations that give a kid a sense of oh okay, that's how much a million is, that's how much a billion is. So it's a great read. I don't know, David. I wish I did, but so I have. No, I'm not getting any kickbacks by mentioning him, but that's probably one of my favorite books to turn to. When someone says, what do you mean using a piece of children's literature in math classroom, so that's a great one. And then next question was Was art Art.

0:39:57 - Julie
You use art a lot to teach math and you use masterpiece artwork like the ancient masters and the you know and I. I imagine you're probably using everything from hieroglyphics to David Hockney and you know everything in between. Da Vinci is probably in there, and Cezanne and Monet and whoever else.

0:40:20 - Robin
How does art come into play? Such a wonderful question. The way I discovered the connection between math and the visual arts was in looking for children's books that I could use in the classroom. I stumbled upon a book by Lucy Micklethwaite and it was called I Spy Shapes in Art. And as you turn the page in this book, on each individual page was a picture of a masterpiece, and it might say I spy a circle in art, and on that page was a piece of art I think it was by Kandinsky, who loves circles, and there's a lot of circles in his work. They're only going to turn the page and I spy cylinders in art, and there is a picture of an Andy Warhol work of art where he loved to paint the soup cans.

So I started to look at this. I thought, gosh, what a great way that visual representation again, and a real life example, a contextual example of math, would be to bring art into the classroom. And so I kind of morph my interest and my practice in using children's literature to teach mathematics by using the visual arts, and so I'll give you one of my favorite examples would be with young learners. We need to teach them to estimate, we need to teach them to count, and we also need them to learn how to create and interpret graphs, in particular, bar graphs. So one of my favorite pieces of art to do this is Starry Night by Vincent Van Gogh, and so when I'm working with practicing teachers and I'm modeling for them, this is what I want you to do with your students. I also teach in my math camps and I was teaching in a preschool program for years and years. I bring a piece of art out and that would be the foundation, kind of the focal point to our lesson. So I would put Starry Night up on the whiteboard in the classroom and my favorite part would be just asking the students to sit and look at the artwork and just getting them to reflect, to discern, to observe, to notice, to think about what would you call that painting? I don't like to tell them the title right away. I want them to look at it and you think about all these skills I just mentioned, about observation, analyzing what's happening, discerning. These are all skills that we need in a science classroom. We need them in a language arts classroom if we're trying to interpret, you know, a poem or something. All of the skills that you use when you are observing art or creating a piece of art are skills that are in, are necessary in all the different content areas.

So, going back to starry night, and you know, once the students start looking at it, I mean they see the stars and the in all the different content areas. So, going back to Starry Night, once the students start looking at it, I mean they see the stars and the moon right away. But after they sit for a few seconds longer, they start to see some mountains in the background and oh, there's a village down below and oh, my goodness, there's a chapel or a church there. And all of a sudden they start seeing these things and the night sky is very turbulent and there's this funny, you know, thin shape coming up off the left side of the painting and some thought it was smoke and or volcano, and it's actually a cypress tree that's appearing in the left corner. So it's

fun for the students just to look at the art. And then what we do next is I let the students color their own or paint their own Starry Night. So once they do that and they get that experience of creating a piece of art, which requires persistence and patience, sometimes you're collaborating and again, it taps into creativity and imagination. These are all skills we need to be employing in all of the other subject areas when we are learning. So the students create their beautiful starry nights and then I give them little star stickers to adorn their night sky. And the star stickers are different colors. Some might be gold, some are silver, green, blue and red.

And what I do with the youngest students are, after they've created the starry night and they have all their little stars in place, I ask them just to look at their artwork and just guess. I don't want you to count, but make a guess. Just glance at your artwork, how many stars do you see? And some will look and say 100. I'll say, well, let's look again, like, oh, maybe 20?. And I say, well, let's count now, because we have to teach kids how to estimate and we want them to make good estimations. But we also want them to learn counting and develop that one-to-oneness when they count and to assess your answer for reasonableness, so that kids will count oh, there's only seven, okay. So do you think 100 was a good guess? No, dr Ward, how about 20? No, I probably should have guessed 10. Great.

So it's teaching counting and estimation which we need to do as part of every state curriculum or private school curriculum. We're using a piece of art to do it. So we get that added bonus of developing art appreciation and learning that art With kindergartners and first graders. I'll ask them to make a bar graph where they create. You know, the heights of the bars are based on how many of each of the different colored stars they use. And so once they create their bar graph, I say can you look at your bar graph? And how do you know which star you use the most of? Oh well, I use the gold stars the most because that bar is the tallest. So we have to teach bar graphs. We have to teach kids how to create them, how to construct them, how to interpret them. Why not use a piece of art to do this?

And so I think, because I love math and I constantly have my math goggles on, I can pretty much look at any piece of art and go oh, that would be great for teaching fractions, or that would be fabulous for teaching cylinders. Weighing those cakes, cakes are cylinders. There's a circle on the top and a circle on the bottom and there's something that connects the top and the bottom, or using you know MC Escher's, you know tessellations to teach tessellation. So I think using art is a fabulous way to get the kids excited. Interested they're learning by doing, they're creating, they're using their imaginations, they're collaborating, they're using all of these fabulous skills and they're not just kind of rotely completing a worksheet. It makes the teaching and the learning of mathematics completely magical and more interesting. So that that's. That's just one, one example of how I might use art to teach a particular concept in mathematics.

0:47:31 - Julie
That's a divine download. You got there, girl. I mean that whole concept is that's a divine download. You got there, girl. I mean that whole concept is that's a divine download. It almost makes me a little weepy because it has such huge connotations and nobody else is talking about this. I mean you're like leading the charge on this, about this, I mean you're like leading the charge on this and you're not only affecting these teachers but also these children and the children.

And then how does that help them live a life of joy and purpose when they're not intimidated by math? And maybe they're like the girl that was in Catherine whatever her name was that was in the Hidden Numbers movie you know about. She was a math genius and she was a black woman what in the 60s? And she worked for NASA and she was marginalized, number one because she was black and number two because she was a woman. But she was the one that figured out what the reentry trajectory for John Glenn's capsule, and they were using new

computers for that. The computers got it wrong, but she was able to do it in her head. So where does that go with somebody who is intimidated by math so they don't go into aeronautical engineering or mathematics, and do something that helps humanity. That's why I think what you're doing is just so extraordinary.

0:49:05 - Robin
And I think it's just getting young learners to see that math can be fun. It's cool. Look at all the great things. I mean you're sending rockets into space and getting them to return safely, among many other things. You think about Wi-Fi, I mean, and the Internet and all the mathematics behind that and the mathematics behind all the algorithms and apps. That all comes back to mathematics and I think it's kind of just destigmatizing that it's not a bunch of nerdy men with crazy Albert Einstein hair sitting in a room. You know, thinking up these formulas, math requires creativity and imagination, collaboration, persistence, patience. There's all these wonderful skills that go into it. And it's math isn't just boring formulas. That should there's. I think if we could teach it better so it wasn't as intimidating, I think we'd have more people, kind of.

And that's my goal is to steer these young learners into the STEM pipeline and in fact, there's been a really big push. It started about probably, I think, in about 2010 by the Rhode Island School of Design, where they were trying to. You know we hear about STEM, science, technology, engineering, math and all the money that was going into STEM education. Well, the Rhode Island School of Design said, hey, we need to insert A into STEM and transform STEM into STEAM, where A is for the arts. Because of the creativity and the imagination that the art just kind of taps into and serves as a catalyst for that. You can learn all these other subject areas when we focus in on the arts and we need to integrate the arts.

That was always. You know, the librarian and the art teacher were the first teachers that lost their jobs during budget cuts because they weren't important subjects and it's like, oh my goodness, the richness of having an arts education, arts-infused education, can't be underscored. The longer that students are exposed to the arts, the higher their SAT scores are, the more likely they are to go to college likely they are to go to college. And also, by bringing art into the classroom, it gives those students who don't, who might be in Title I schools, who don't, who won't have the ability to have a mom or a grandparent take them to an art museum they may never have access to. Even seeing a masterpiece Gives them the opportunity to experience art and we need to do that. If there's kids, there's opportunities, yeah well said.

0:51:44 - Julie
Back to the artist for a minute, and I think of Da Vinci and all of his medical sketches and all of his sketches of everything else that he did. And I know artists who will sketch something out first and then paint it painters, let me say, or watercolorists, or whatever medium they're using, and I've seen them do it in shapes, like they, and I don't know if that's taught in art school, where maybe there's triangles and spheres and things like that used. Is that do you think? I don't know if you're an artist as one of your side gigs, but do you think that the great artists of the world and anybody that's doing art is that again, those divine downloads coming in in shapes and then it's translated into whatever comes about from that?

0:52:41 - Robin
Does that make sense? Yes, and I wanted to mention this at one point, but it's such a fabulous question. In art there is something called the seven elements of art. So if you are going to create a painting or a sculpture, you will use one or more of these seven elements. One of the elements is line, so you said, they start with sketches, so they're drawing lines. Shape is another element of art. If you're going to create a painting or a sculpture, you're probably going to start with shape. So line, shape form, are three-dimensional shapes. Space artists use space all the time Perspective, so the objects in the far back are taller than the ones in the front.

But think about those four elements of art line, shape form and space all mathematical. These are all words we use in a math classroom. So again, it kind of underscores the connection, the divine connection, between math and art. The three other elements of art are color, and I think about if you want to create the color orange, you might use, say, half a teaspoon of red and half a teaspoon of yellow and you create orange. Well, that's fractions and ratios. So color's mathematical Value is the other element of art where we talk about the intensity of a color.

So if you, Julie, wanted to create a reddish orange, you might use three parts red paint to only one part yellow paint. So again, we're talking about ratios and proportions. That's mathematical. And the other element of art is texture, and when I think of texture, I think of plaid patterns that have a texture and it's a series of intersecting lines. So all of the elements of art. When you go back to Da Vinci, they were drawing shapes or lines. Do I think being an artist is a divine gift? Do I think being an artist is a divine gift? Absolutely. I can't draw or paint myself I wish I could but I'm able to look at art and make it come to life. So I just see that beautiful. You know, it's just an interconnectedness between math and art. They share the same vocabulary and I think in both they're just beautiful beautiful content areas, all right, changing topics.

0:55:09 - Julie
For a second, since you've received more than 10 million in grants from NASA, the US Department of Education and others, it seems like your message is being heard, at least at some levels. Do you take that as confirmation that you're on your life's purpose, on your life's path of purpose? Gosh?

0:55:26 - Robin
I am incredibly grateful that I have found my passion. I think that's what we're here to do find out how we can service others, how can we help others. I love math and if I can turn other people onto it, I want to. I have a fairly large teacher following and when I work with these different practicing teachers, they just leave so excited and just energized about oh my gosh, I never thought about bringing story into the classroom. I never thought about bringing art to the classroom. So I feel like I do get confirmation through my professional development and working with the young girls and the moms will say, oh my gosh, my daughter came home and she loves math now. So, yeah, I want to believe my message is getting out there and, just like you, you are a gift to your audience and you found your gift. And I joke, I can't really do much else, but I'm really good at finding math in anything and just wanting to share that passion and to really bolster our girls and like, no, no, you are a mathematician, you can do this.

0:56:42 - Julie
Yeah, Do you often receive what I call divine downloads, let's just say validation from spirit, and how do you know that's what's happening and how do you know that it's accurate?

0:56:55 - Robin
Well, I have a guardian angel named Cornelius, who I don't know where that name came from, but it came to me and I think we talked about that at one point. I see the number 11 a lot and that's when I do I always pause and think okay, really plug in to what I'm doing. What I'm thinking about Is it serving my better self and my higher purpose? Serving my better self and my higher purpose? Also, when I see the color orange, or actually the free orange, that's when I know my. I don't know why, that's my, that's what came to me one day, that's my symbol, and when I see that that causes me to go. Okay, I need to be listening. Someone's trying to come to me, or I need to pay attention to what I'm doing to make sure that it truly is serving the better of others and it's serving my higher self when I'm supposed to be.

0:57:48 - Julie
Right, right, all right. Last question why do we incarnate?

0:57:54 - Robin
I think, I want to believe that we keep coming back as a better form of ourself and we're ultimately on this hierarchical journey, that each life that we live we learn some difficult lessons, but it helps us improve and maybe become more empathetic or passionate, whatever, and then we have the opportunity to come back again and do better. And so I think maybe it's almost like a little pyramid. We're getting better each time. I'll think of it mathematically. We're climbing this ladder to reach our ultimate peace and love and unity.

0:58:37 - Julie
Yeah, wonderful, wonderful answer. You are just one of the most extraordinary people I've ever met or ever known, and I really believe with all my heart that you are on a mission from God. Without starring in a Blues Brothers movie, you're helping make life better for our children and thus you know for everybody who's a human, and even in galaxies far, far away, maybe somebody might work for you know, for some satellite company or something that you know that gives us information on other planets and things like that. So I just am so grateful that you are following where you're being led and you've had the courage to go out and really talk about this and teach a new concept. And for those of you that are listening and not watching this, you'll want to watch the YouTube video because Robin looks like a fashion model. I mean, she's like as far away from Einstein an Einstein looking mathematician as you could get, and so you know, it's just. You're just so extraordinary that I'm delighted to share you with everybody that is listening and watching this video. How can people learn more about?

1:00:04 - Robin
you and your work, oh gosh. Well, first of all, please let me thank you, Julie. I'm truly honored and humbled to be with you, to share ideas, to talk about these things and to be a part of your audience. I saw your story today about Booker T Washington and said if you want to lift yourself up, lift up others, and so thank you for lifting me up today and I hope I've lifted up your listeners.

But if y'all want to kind of check out how I use art to teach math, I'm on Instagram and on Facebook and you won't be surprised if I tell you that my handle is MathGoggles and so you can find me that way. I was fairly active on Twitter and then I kind of got off of it and then. But every time I work with teachers, or if I work with students as part of these little camps called Camp Gem Girls Excelling in Math, I always post my pictures on Instagram and Facebook so that my teacher followers can go. Oh, that's a great idea. I can use that in my classroom and it's fun for parents to go. Oh, I quite often hear I wish I was taught that way. Yeah, me too, yeah.

1:01:19 - Julie
Do you have a website that people can go to to contact you?

1:01:22 - Robin
as well. Yes, mathgoggles.com, so they can reach out to me. They can direct message me on Facebook or on Instagram as well. So thank you for asking that, yeah.

1:01:33 - Julie
Yeah, you bet we have a lot of teachers who listen to this show, of all levels, from elementary, preschool, elementary all the way up to the college level. So it's going to be fun to see where all these ripples of what you're talking about and what you're teaching, where they go and how many people that they help by default Because teachers. My mom was a principal and I didn't

really think much about this until her funeral when there was this line that lasted for a couple of hours of people waiting to see my dad and the rest of the family and you know, you think about you teach somebody and then they teach somebody else, and just in their children and their grandchildren. Where do those ripples of influence go and how far do they go, even outside of people that they know and people who are family members, which I think makes it really fun to watch that happen. So, all righty everybody. That's it for this week, Sending you lots of love from Sweet Home, Alabama, and from Texas too, where Dr Robin is. We'll see you next time.

1:02:41 - Robin
Thank you, Julie. Bye, everybody Been a pleasure.

1:02:45 - Outtro
Thanks for joining us. Be sure to follow Julie on Instagram and YouTube at Ask Julie Ryan and like her on Facebook at Ask Julie Ryan To schedule an appointment or submit a question. Please visit AskJulieRyan.com.

1:03:00 - Disclaimer
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