

Episode 6: With the Day 1 Math Home Ceirin Connolly-Ingram, Forensic Scientist

Transcribed with Rev.com, apologies for typos

Ceirin:

Math is embedded in everything that we do. So I think that it has to be something where instead of just giving a kid a sheet of math problems and telling them like, alright, solve for X over and over and over again. What is X? What does it represent? What am I doing here?

Kari:

Hi everybody, and welcome to the Critical Math Drop podcast with your favorite math teachers, Kari Kokka and Michelle

Michelle:

Cody

Kari:

With our special guest

Michelle:

Bumping It Up.

Ceirin:

Hi, my name's Ceirin Connolly-Ingram,

Michelle:

Cc Money Baby. Hi Ceirin.

Ceirin:

Hi. How's it going?

Michelle:

Good, good, good. Pleasure

To be here. Bit of intro to Cieran. I actually wrote this and if you don't know, Kari and I don't write anything. We normally wing everything, but I wanted to give our first time guests a proper proper. So Ceirin and I have known each other since I was in eighth grade and he was in seventh grade. And since then we have done a lot. We've graduated from high school, college, we worked together at the program where we met, which is Aim High, attended grad school and just become whole humans together. I think we really cemented our friendship during our teaching tenure at Aim High. He's definitely a day one for sure, and if you don't know what a day one is, Google it. Cieran, although he's not a math teacher, is a huge supporter. He is a longtime listener. First time collar vibes. If you watch Frazier, you can get that joke right there and we wanted to have 'em on because one of our pillars of this potty is to make sure that we reach all the homies, so not just math teacher ones. We also want to bring other people in. So we brought in this guy, this human, one of my favorite people, one of my besties, who is Matthew. He has a bachelor's of science in chemistry from Loyola Marymont and now is doing his CSI thing in Santa Barbara, and we're just blessed to have him on the show. So Kari is going to start off through our little interview and I'm going to be like the side homie and just kind of interject a hype person.

What? You ready? You ready? It's like an open night. Like that episode. What is it? Eminem's movie when he's sending the mic and he's going and he's ready, he's going to drop some knowledge. That's what we're looking for. Ki you going to drop the knowledge to all? Thank you.

Ceirín:

I hope to five my followers this point.

Michelle:

Yeah. You ready, Kari?

Kari:

Yes. Yes.

Ceirín:

Eight Mile I think is what you were going for.

Michelle:

Hey, mile. Yeah. Boo Yourself. That was a song I was thinking about. Yep.

Kari:

So we're real excited for you to join us. You are our number one supporter. Michelle tells me about you every time about your feedback about the podcast. You're our first person to give feedback, first person to write us a review. If folks want to give us a rating or a review like Cierindid, we would appreciate it and I'm excited to get to know more about both of your friendship and also more about you and your career. So the first, actually, I want to ask a question before we start. The first question, I just want to learn more about the two of your friendship. How did you become friends back in middle school?

Ceirín:

Okay. Well, like she said, we met when we were in middle school, so we were both students at the AIM High program at Lake ing, and she's a year older than me. And so while we were students,

Michelle:

Just biologically, not spiritually, I'm much

Ceirín:

Younger than her, way younger. I think as students, we didn't have that many interactions, but we both went back to work at the program when we were in high school and we were just always hanging out, always trying to help each other get through those long summers of teaching San Francisco's youth.

Michelle:

Yeah, we had brief interactions in high school. He went to my dream school, which was Lick, and I was at Lowell and another person younger than us, but y'all were friends, and so I saw him in high school, but we weren't as close as he said. And yeah, we spent many summers just teaching the babies at Aim High and

Ceirín:

We were babies ourselves. So it feels funny to look back at it and think that someone would give us the control of a classroom at that age.

Kari:

Well, but this is great too because you also have the perspective of you being a teacher. So you are a teacher, right? A little bit. Do you identify that way or you don't necessarily?

Ceirín:

I feel like I've retired a little bit from it, but I guess in my job I still have to do a little bit of teaching.

Kari:

Okay, okay. Okay. Yes, yes. Okay, so we're going to get into those questions about your job, but I will ask the first question, which is who was your favorite teacher and why?

Ceirín:

Okay. That could be

Michelle:

One of, okay, wait, wait. So let me stop before you start. I realize that sometimes we ask absolute questions, so what's one of your favorite teachers? Because it's like you're going to say who your favorite teacher is and then two hours you're going to be like going to call me back and be like, man, I'm meant to say this person is my favorite teacher. Can we go back so one so that whoever doesn't,

Ceirín:

I was already going to give you two anyway.

Michelle:

Oh, okay. There we go. There we go. We'll take it. We'll take it.

Ceirín:

My favorite teacher of all was my high school Spanish teacher teacher, more er. That was just my favorite class in all of high school, but related to this podcast, my favorite math teacher was George Palin. I think I had him in eighth grade, possibly seventh grade, but I think it was just eighth grade. But yeah, I really enjoyed the way that he taught math and he had a lot of patience with us as students, especially because I think that he had a lot of challenges with people not really being that into the math at that age. Not my problem. I've always loved math, so that's it. Yeah. George Palin, math teacher, eighth grade.

Kari:

I love the fact that both of their first names, I don't feel like most people know our teacher's first names.

When we're in K 12,

Ceirín:

I went to a very interesting elementary school where I knew all of, they just went by their first names, and I've learned in life that that's not a normal thing, but Charles

Michelle:

Don't even

Ceirín:

Know that I know all of all my elementary teachers, we called 'em by their first name. I don't even know if I know their last names. It switched up when I went to middle school and it was Mr. This or Mrs That, but I guess just over the years came to know his first name,

Michelle:

But also your high school. They went by first names too at or no?

Ceirín:

No, they went by last names.

Kari:

Okay. Yeah. When I was a high school teacher, we went by first names, so the kids just called us by our first names, but I just know from my own experience, I remember finding out the teacher's first name. I was like,

Michelle:

Oh, we

Kari:

Know a lot about you, but I guess that's not the case for everywhere

Michelle:

Now. These kids, they recently were, somebody was like her first name and they were like, yeah, we know her name, Michelle Cody. And I was like, well, we don't know her middle name. And another kid was like, yeah, because we be Googling you. I was like, what? They'd be like, yes, there's videos and all kinds of stuff. I'm like, bruh, why are y'all googling me? Why is that a thing? He was like, I don't know. We just started doing it and everybody started. It's a trend, and I was like, okay, great. Thank you. I need to scrub the internet. Y'all got nothing.

Ceirín:

That's better to do. She didn't have background information on you.

Michelle:

I mean, there's other people to Google and I ain't one of them really? But it's cute

Kari:

Though. No, because it means that they love you

Michelle:

Or they're just trying to get some dirt on me,

Ceirín:

Or they trying to set you up.

Michelle:

They trying to set me up. Set me up. They're going to be like, we seen this picture from 20 years ago with you, Ms. Cody, and it looks like that wasn't apple juice in your hand. Girl,

Ceirín:

You in a nightclub. What is this?

Michelle:

What is this? Well, actually, I don't think so. My kids don't understand how old I am. The math doesn't math with them around that. Some of them are really convinced. I'm in my twenties and I'm like, I have a 15 year old. Y'all.

Ceirín:

Actually, you don't correct me. No, you probably just,
Michelle:

Okay. I don't correct them. I don't. I'm like, that's Delta of youth. I ain't correcting you. If you want to think I'm 25, I will take it. Sure. The spirit of a 25 year old, I'll take it. Yeah. Okay. Sorry, Kari. We just kind of hijacked that.

Kari:

No, no, no. I feel like, no, but I do feel like this is how, and Kieran, you noticed our podcast is very casual. We just talk about what we're talking about, so we're going to do the same thing so that none of us feel nervous.

Ceirin:

We'll fix it in the edit.

Kari:

Yeah.

Ceirin:

That's a podcast thing to say, right? This is my first podcast appearance.

Kari:

Oh, well, we are honored. We are honored to have you.

Michelle:

Maybe after you get on there, we'll hit that a hundred mark.

Kari:

Yeah. Oh yeah.

Michelle:

Should

Kari:

We give an update? We posted? Yeah, we posted. There was one episode where we said we had 15 followers and we now have 75 followers,

Michelle:

And it's a math equation because it's over three different

Kari:

Platforms.

Michelle:

It's like, it's Spotify plus Apple plus Instagram equals the number of followers we have, right?

Kari:

Well, we have 75 on Apple and Spotify and we have 68 on Instagram and not like the numbers. I mean, I do feel like it's a little bit of a, this is my critical analysis hat. It's a little bit of a capitalist thing to be like, oh, we have this number of followers, but we could have very followers who always listen to our episodes. Quality over quantity. Ceirin, your

Michelle:

Mama and your daddy.

Kari:

My mama, my daddy,

Ceirin:

Your grandma.

Michelle:

My brothers

Kari:

And my

Michelle:

Grandma.

Kari:

And that's all we need.

Ceirin:

Yeah. Your grandma listened last time, right?

Michelle:

She listened to the first episode. I don't even know if she listened to the other one. Shout out to Leona Cannon. Are you listening, lady? Probably not. She was just surprised when she heard me through the thing. She's like,

Kari:

Oh, she's coming through the computer. I want to get, can we get an audio clip of your grandmother giving us feedback so that we can play it on the podcast? That'd be so nice. Oh,

Michelle:

Mg yes. That would be, that's testimonial my goal. Yeah. Yes. I'd be like, can you talk about me being on a podcast? First of all, I want her to know what a podcast is. My grandma's a very smart woman. I'm not trying to play my grandma. She's 90, she was born 1929, so 94. She's 94 years old, and I'm going to say ass. I'm sorry. She's like a badass. Had 10 children and raised them. Her and my grandpa owned a house in San Francisco. My grandpa worked, my grandpa actually was a union guy. He worked with SCIU, just like amazing because they were at a time where opportunities wasn't afforded to black folks. She's from Bakersfield and came up here and it was her and her two sisters, and she survived a lot of people. She survived the death of both her parents, her stepfather, her husband, three of her children, her two sisters, and just, it's Maria miraculous in her spirit.

She's super funny. I think her goal in life is to get me married, and that's an interesting goal to have, but whatever. And she's just great. She's super funny. She's super, super funny. And I realize that when I get older, I can't wait to get old because I feel like with elders comes freedom to say what you want to speak from your chest, and people can't really say anything from me. You'll be like, I have 30 years on you to leave me alone. So yes, that's my goal. I'll try to get a clip from my memaw to say something.

Kari:

Yeah. All right,

Michelle:

Ceirín, back to you. Wait, wait. Can you also explain that Twitter thing, X thing about

Kari:

Oh, about the retweets? Yes. Actually, Ceirín and I are Twitter friends now.

Ceirín:

Just followed her yesterday. Yep.

Kari:

Yeah. And I followed you back, so I've been trying to learn Twitter a little better, but yeah, I posted, well, what's funny, I tried to post about the podcast on Twitter before and it somehow got hidden. It doesn't even show up in my feed, on my profile. So I posted again about the podcast and I kept texting Michelle like, check your Twitter. Check your Twitter because people are liking it and reposting it or commenting about it. And Michelle said she doesn't check her Twitter. I've only kind of recently tried.

Ceirín:

She definitely does not. I'm a bad follow too though. I don't actually say anything. I just kind of stand in the back of the room and watch what everyone else is doing.

Kari:

But do you at least people's stuff?

Ceirín:

Yeah, sometimes.

Kari:

Yeah.

Ceirín:

I like stuff. Yeah,

Michelle:

I need to take a class. I need to watch some TikTok videos and realize how to use Twitter X, whatever appropriately. I recently, when you told me to check Twitter, I got on it and I was like a, I don't want to accidentally tweet something out in the world because I did it wrong. I was supposed to send somebody a private message, and then I ended up selling all my business to the world. That is

Kari:

Actually

Michelle:

My fear, and it's my fear because I actually did that one time on Facebook 10 years ago. I thought I was sending someone a direct message. In actuality, I was posting on my feed for Facebook and I was like, no. And I tried to delete it. I mean, I did delete it, and to be honest, ain't nobody checking for my Facebook, so nobody really cares. But in 30 years I might have dropped something prolific and some vulture is going to look through you, dig through my Facebook messages and be like, you remember that one time that you confessed your love for this person on Facebook? Yeah, we found it and now

Kari:

It's going

Michelle:

Up. So that's my angst

Ceirín:

Around. One thing you have to get better at is checking your dms, right?

Michelle:

Oh my God, yes, yes, yes. I actually, and I will tell the story because this person DMed me two years ago and I didn't realize it. I'll tell the story because I think they're coming on our podcast in a couple weeks, so I would tell the story of how we got connected, but yeah, I'm really bad, but I'm also really bad at text messaging. Ceirín can attest to that. I read people's text messages and I respond in my heart, but I forget some time to respond in real life. And so people are like, did you get my message? I'm like, oh my God, yes. It was so good. Oh, I didn't respond back, but I did in my heart, and that's also important. Anyways,

Ceirín:

I'm glad we need a chicken to have them on the podcast though.

Michelle:

Yes, yes, yes, yes, yes. That's exciting.

Kari:

But that's good to know about the text messages then It's like if you don't know that's just

Ceirín:

Person, it's not

Kari:

Personal thing. Yeah. Then you just know like, oh, that's just their tenancy. Otherwise, if you don't know, you think like, oh, wait, did I do something? Are they upset with me?

Michelle:

Yeah, yeah. It's rough.

Ceirín:

I would say nine times out of 10, if she hasn't text you back, she lost her phone.

Kari:

This is the type of juicy stuff I wanted us to talk about, given your friendship for so many

Ceirín:

Years, and you'll be like, well, where do you think you lost it? Honest, honestly, she'll be like, I have no idea. Anywhere. Anywhere that I've been in the last 20 days,

Michelle:

I've gotten better. I've gotten better. Yes, there was a time my house number is still the same. My parents' house number is the same. So people have definitely called my parents' house and be like, is she alive? Is she there? What's up with her? And they be like, yeah, who knows? I think that as my son has gotten older, I've tried to be more on it about where my phone is. Yeah, it is a struggle. It is definitely a

Ceirín:

Struggle. How many new phones do you think you've gotten over the years? Because you lost the whole, that's a lot of math right there, how many phones

Michelle:

That is probably, yeah, I think that Samsung definitely needs to send me some shares and as a thank you. Thank you for being a loyalist. Yeah. Now I feel now more connected to my phone, but I think I was a little bit, the fact that people can always get in touch with you at any given moment was kind of like, Ugh. But now that I have a kid, I'm like, I need to get in touch with him, even though he doesn't always want me to get in touch with him. And now I'm a little superstar. I want to put a tracking device on his phone. I want to know where you are in any given moment. What's up? So it, the tide has turned definitely around my viewpoint of phone usage and all that other stuff. Anyways,

Kari:

They have that

Michelle:

On the iPhone. I know. So he has an iPhone, but I don't, and so, okay, we're going to sidetrack one time, then we're going to come back. What I find really interesting is that this generation shares their location with their friends, but then when their parents ask for their location, it's like a big deal. They have these little apps. Has that ever

Ceirín:

Been, is that something that's changed or what? I feel like,

Michelle:

Well, we didn't have that bring, we didn't have that, but we didn't have that growing up. They have these apps that literally tell you where you are, and there's this other thing, and I can't remember it, and my little daughter has one where her and her girlfriend do this, and it's like somebody else was telling me about it. There's a time, at a certain time of the day, the app sends you a thing, take a picture of what you're doing right now, and then it sends it all to your friends. So it's like 9 27, and it's like the app will tell you, take a picture and capture what you're doing so that everyone will know what you're doing in 9 27, which seems interesting. It just seems interesting. It seems extremely interesting around the level of comfortability that they have with sharing everything with everyone, but then

Ceirín:

Except their parents, except that people don't need to know. What I was getting at is, I don't know, I feel like kids have always kept things from their parents. We don't have all the technology to tell our friends exactly where we work at all times. But yeah, I think if we did, we would still not have our parents knowing our every location.

Michelle:

And I have to remember that. I think that sometimes I'll ask him stuff and he'll be like, you're so weird. And I'm like, I teach middle school. There's not much you can tell me that's going to send me into total shock. So I try to have that grace. He is a growing teenager, but I also, I'm also like, man, it kills my soul. Anyways, enough about that. Boy, I'm going to hijack. Can we talk about what you do? Well, okay, so I want to put some respect in your name. I want to talk about your educational attorney really quickly. So

you did two thirds of your K through 12 education at public school, so you were homegrown, and then your high school career you did at

Kari:

Lick,

Michelle:

Which is a private school,

Kari:

And then

Michelle:

You did your undergrad at Loyola Marymount where you studied chemistry,

Kari:

And then you

Michelle:

Did some work in the fields. Not in the fields, but I don't know how to say it. You worked,

Kari:

You got a job?

Ceirin:

I got a job after college for a couple years, and then my mom told me to go back to grad school.

Michelle:

Oh, was your mom who told you to go back to grad school?

Ceirin:

Yeah, I think that I was like, oh, I made it through college. I never have to go back to school again. And then I was working for a couple years and I don't know exactly what this was. I don't know if she just thought that my job wasn't one where I was going to grow in the company or what, but she was like, yeah, it's been two years time for you to go to grad school. And I was like, that has never been discussed ever before, but okay. And it's because the only reason I think that I got on board with it is because I really wanted to be in forensic science. And at that point I wasn't in forensic science. And having gone to undergrad and studying chemistry, I didn't have any connections to the forensic world after that. And so this was an opportunity to go to a specific forensic science program. And so that was what was intriguing. I felt like I would learn a lot more specifically about the field. And so yeah, I ended up going to uc, Davis.

Kari:

Yeah. Can you tell us more about, for those of us who, I think when we hear forensic science, we do think, like Michelle said in the intro, like CSI.

Ceirin:

Sure.

Kari:

Can you tell us more about what you do?

Ceirín:

Yes. So my main roles at the laboratory are as a controlled substance analyst and a blood alcohol analyst. So kind of what you guys were saying about CSI in the show, every episode there's some crime scene that people go out to and they're trying to figure out who did what, right? Well, we do do that, but not very often. We don't go to crime scenes very often. There is a lot of laboratory work cases that come to us and we work them in the laboratory and we get our results. Those results sometimes will be requiring for us to go testify in court on 'em, but the stuff that everyone is so interested in is the crime scene stuff. And I'll say that over the years of being here, I've been to maybe 10 or so crime scenes, maybe a few more. But I think it has to do with location because other labs in our system, so I work for California Department of Justice, and I'm at the Santa Barbara lab, our lab down south and Riverside, they respond to scenes a lot more frequently than we do,

Michelle:

Which is crazy because according to psych, there's always crimes happening in Santa Barbara. So I don't understand. I used to watch it. I was like, Santa Barbara is such a crime written city first. Be such a small, beautiful city on the water, crime is always happening, murder is always happening, and Gus and Sean are always trying to save it. So I thought that that was going to be your life having all kind of adventures in a small blue car as you're going down the coast of Santa Barbara.

Ceirín:

Yeah, a little bit different from the show psych, which I think was filmed in Vancouver or something like that. But yeah, it's not exactly like the tv. But to get back to what I do mainly in the lab is I'll get cases that for controlled substances, the case question is always, is this a controlled substance? And so I'll do testing on a substance, both kind of preliminary color tests, which are just kind of these tests where I add chemicals and a color change would indicate what the substance may be. And then we do instrumental testing, which is going to confirm what the substance is if it's controlled. And the other thing I mentioned was blood alcohol analysis. And this is where I get really mathy actually, because the case question there is how much alcohol is in this blood sample, if there is any alcohol at all.

And then when it comes to going to court on that, it's always kind of using algebra to estimate what the person's blood alcohol concentration was at the time of them driving. And because obviously more amounts of alcohol will affect the way that somebody performs their driving. So that's kind of the question that we're trying to answer there. But we do a lot of math in that discipline, and there's a lot of having to do math on the stand, which is very nerve wracking. The entire courtroom is quiet and you're just working on your piece of paper. So yeah, it's good to remember some of those basic algebraic kind of expressions and rules.

Michelle:

Does the judge ever ask you to show you the work? As a math teacher, you're always like, I don't want the answers. Show me your work. Does the judge like, okay, do they call you Mr. Colleen Ingram, forensic scientist? I don't know what they call you on the stand, but can you please show us the math? Show us your work friend. I want to make sure that you carry the one appropriately.

Ceirín:

I will tell you, up until this point, no one has asked me to show the math, but I can't tell you that every time. I'm not sitting there nervous that they're going to be like, all right buddy, what are you writing down? Show everybody.

Kari:

So can I ask you a question? So because there's actually a social justice math task in that the high school Corwin book, and it's about false positives. And so you know how you were saying that some of the first steps you do is the color change test,

And there have been cases where police officers will pull someone. So there's this case where the police over pulled over this black couple because they were profiling and they didn't have a legitimate reason, but really they said that there was something about their license plate holder. And then they took, she had fertility vitamins and they tested those for drugs and because of the color that it changed said that she had drugs on her when they were fertility supplements. So I guess I'm just curious to learn more about the color change with the drug test and do you ever get false positives?

Ceirín:

So the color tests aren't confirmatory tests. And so we get things from the police where they said that they've tested it and they'll say, we tested X substance and it tested positive for Y substance. And that really has no bearing over what I'm going to do because I'm going to test it myself. So I don't even really pay attention to that most of the times. But the color test is not confirmatory, like I mentioned. And it really tells you more about what class of substance something is. So we have several different color tests, and it's not telling you this is methamphetamine, it's telling you this is a ethyl amine, so it'll tell you just what category of substance it might be. And so we can't go to court on just the color test. We have to do a confirmatory test. So that's when the instrument comes into place. And we use an instrument called gas chromatography mass spectrometer, and that is going to be our

Michelle:

Wait, say that three times fast. I know. I was like, wait, I want to google this, but I don't even know how to spell that. So gas. Say that one more time.

Ceirín:

Lemme again, I messed it up. Gas chromatography, mass spectrometer and

Michelle:

Oh, as an English person, you break that down. Gas, what's the second word? Chromatography? Pro

Ceirín:

Proma

Michelle:

Chromatography. So photography, I feel like graphene is a study of, and then what is

Ceirín:

Gas chromatography?

Michelle:

It's color

Ceirín:

Mass spectrometer,

Michelle:

Mass spectrometer.

Ceirin:

And I'll tell you, so what our instrument does is once we get our sample into a liquid form, we extract it into a liquid and we put it on the instrument, the gas chromatography part of the instrument is separating out things, separating out different parts of that mixture. So you can think of it kind of like a coinstar machine. So if this

Michelle:

Mixture,

Ceirin:

That's analogy has different things into it, you put your coins in the coinstar thing, it's going to give you dimes and nickels and porters and everything. So that's what's happening in the gas chromatography part. It's separating out all things that are like from one another. And then the mass spectrometer is where we do the, it's a detector and that's where we confirm what the item is. So as those things are separated and they reach the detector, they're being broken down into their parts and molecularly. And so that is something that we compare to different standards that we purchase from a company. So we purchase drugs legally and we'll have all of our different standards of meth, cocaine, heroin, and those are cataloged in our instrument and in our binders. And so once we get an unknown substance and it breaks it down into its molecular parts, we can compare those two substances and that's how we make it confirmation.

Michelle:

Okay. So I have another question. I'm sorry, this is off the list. So this is becoming a little sy. So you have your, oh my God, you have your control, which is what you purchase from these companies. But when it comes to different kind of mixtures and drugs and stuff, is it just breaking down to the Oh, Michelle, you got muted. Oh wait, can you hear me now? Yeah. So there's sounded

Ceirin:

Like it was going to be a good question.

Michelle:

I was in it. I was in was speaking about this. So you purchase these drugs, which are the controlled substance, and I'm assuming it's in its purest form, right? Because a lot of these drugs, these street level drugs are not pure. And so is there a percentage there percentage where you're like, this makes a threshold for this actually being this controlled substance, or is it any kind of whiff of it, or is it done by case by case basis? Did that

Ceirin:

Make sense? Yeah, exactly. What you're talking about is why we put it through the chromatography processes because a lot of these things aren't pure. So we're going to separate out the cutters from what the actual drug is. And we don't actually at our lab quantify how much there is. It's all qualitative. So the thing is, part of the process is we get the substance and we weigh it. So I'll get in a white powdery substance, I'll weigh it and I'll say it was three grams. Then I go through all the testing and I get my

results back and it says that it's cocaine. Well, is it three grams of pure cocaine? Probably not. But it is cocaine. Cocaine. It contains cocaine is what we say. So when it comes to purity, that's not something that we spend any time on, but you're not supposed to possess it anyway, so it's just This is cocaine's. No, on cocaine.

Michelle:

Contain cocaine. That's a no on cocaine. That's our official statement and our podcast, that's a no, Kari:

We're

Michelle:

Saying it's no, say no to that. Say no to cocaine. Okay.

Kari:

Kari,

Michelle:

I'm sorry.

Kari:

So as you were talking, I realized the last episode, a recent episode that we did was about water quality. And as I was talking about the task that I designed, I told Michelle, I said, really what I needed was a chemist because I didn't fully understand how the water quality monitor works in terms of they're using this electric current to try to approximate how many total dissolved solids are, but we have no idea what those dissolved solids are. They could be minerals that are good for us or they could be toxins. And so your job is actually figuring out what are all of these different substances with this, let's see if I can say it. Gas chromatography, mass spectrometer.

Ceirín:

Perfect. Is that close? And to make it easier, we just call it A-G-C-M-S.

Kari:

GCMS. Okay, I'm going to look this up later. Okay. So can you tell us in our audience, maybe we'll have more than 75 people listening to this. What was your experience like in math and science that led you to want to pursue forensic science? I don't know anyone who does forensic science. I don't know what spurs someone to decide to go into that.

Ceirín:

I've always really liked science and math. I think the turning point for me in high school was seeing the movie Bone Collector with my friend Jason Gantt. And I think after we saw that movie, it was maybe one of the first times that I'd ever heard about forensics and I was like, I want to do this. We both wanted to do it, I think at that point. And I was also in a really good chemistry class around that time, and it just was something that I was like, I think that that seems interesting. I want to pursue it. I don't really know how to get there because as I mentioned before, going into college, studying chemistry and then getting out, I wasn't in the forensics field, but I figured that having a science background was part of what I needed to do to do that. So yeah, I think it's just always been a strong love for math and science that led me into that kind of major and field.

Kari:

And so what would you say, looking back on your own through 12 experiences, what would you say to other kids if you were to come to a career day? What would you tell the students about your own journey, both with your education and your career?

Ceirín:

I guess I would say that there are certain professions that we are all familiar with, and I think at that time before knowing that I wanted to go into forensics, you kind of get the same handful of professions that people tell you are I know good professions to have or lucrative. So I think those being police officer, lawyer, doctor, these are kind of the ones that are encouraged. People encouraged you to go into those. But I would say to kids at a career day that try to figure out what it is, something that you're curious about or passionate about, and see if that's something that you can make a career out of. Because I think for me, the path wasn't really defined. I didn't know anyone until I was about 25, I think, when I started grad school. And at that point I didn't know what the steps were to get to where I wanted to be. But definitely find someone in a profession that you want to go into and ask them how they got there

Kari:

And then what go, I want to ask the last question. So go, go, go. Okay. Okay. So the second to last question, and then we have a game is, so then what would your message be to teachers, thinking back on your own journey as a student, what do you wish your teachers did or what would you say to teachers?

Ceirín:

I would say, especially specifically for math, to try to gather those kids that aren't exactly enthusiastic about math. And I think something that you guys have done really well on your podcast so far is make the math relevant to them. I think that, I remember in high school getting into algebra precalculus, and a lot of the times you're just working on math sets problems that you can't relate to. There's not anything that makes you say, this is relevant to my life. And I mean, obviously as we know, math is embedded in everything that we do, so I think that it has to be something where instead of just giving a kid a sheet of math problems and telling them, all right, solve for X over and over and over again. What is X? What does it represent? What am I doing here? We did a lot of problem sets about parabola.

I remember that a lot. And I actually remember in Aim High, I think we were doing something about solar ovens, and we learned that on Parais, there's a point where in the parais that if the sun hits it, it's all going to be directed to this one point. And so we built a solar oven with foil and we roasted marshmallows. And that's something where it's like, we didn't do that in high school. We just did a bunch of formulas. And you're like, okay, well, I know how to graph this over and over and over again, but what can I do with this actual information? And I think when I got to college and I took my first physics class and it was hard. It was a bunch of equations, but you got to see the real world application for what it would be a word problem where they would describe a car going down the street at certain velocity or something, and it made it more real than just numbers and equations on a page.

Kari:

Yeah. Thank you. That's perfect. That is exactly our whole point of this podcast.

Ceirín:

Yeah, I mean, I loved hearing about the project you did about traveling for the gumbo, and I want to just put it out there. You guys have talked about doing a math dinner party. Maybe we could have math dinner party with some gumbo, but I mean, that was a real,

Michelle:

Maybe you go to Vegas and have it. Oh,

Kari:

Yeah, you got y'all to come visit me in

Michelle:

Vegas. As long as you remove the cats.

Kari:

I know. I know. Michelle's so

Michelle:

Allergic.

Ceirín:

Yeah, she almost died one time. She came to my house in grad school and she almost died because my roommate had a cat.

Kari:

That's what happened when she came to visit me in Vegas. She reached her limit and she started getting real sniffing. She was like, Kari, I'm sorry, I got to go now. And I was like, okay.

Michelle:

No, it was bad. I slept on the couch and then the next morning, and it had to be like, care's. Mom is a nurse. And so I was just like, I think I'm dying. And I felt better. We drove back from Davis to San Francisco in the car, and I was like, well, if I'm going to go, it's better to be in the car with the nurse because at least they can help me out and yeah, it's bad and yeah. Yeah, it's bad. I don't even, it's like it gets inside my lung. It's a whole thing. Anyways, okay, my last question, which I'm excited for you to answer, is there such thing as a perfect crime?

Ceirín:

I'm not going to answer that, Michelle. I would like to have some job security.

Michelle:

I thought I would try it, Michelle. Okay, we're not done with you yet, Kieran. We got this game that we want to play. We want to keep it interesting. Well, this has been super interesting, first of all, and super cool, and I think a lot of our listeners, all of them, plus you will love to engage with this podcast. Don't forget to and subscribe. I don't know why I said that. That was weird. I don't know why I said that.

Ceirín:

Well, thank you for having me. No, it's been a lot of fun.

Michelle:

Wait, we're not done with you yet. Okay. We have good day. I know

Ceirín:

I'm not going anywhere.

Michelle:

I just feel like I click. I feel like people in the middle of podcast always be like, if you like this, don't forget to subscribe and hit the like button. Give us five stars. It's really, really weird because that's not what you would do in real life. Well, I guess if you're an entrepreneur, you do, but I never get to go in class and be like, Hey, if y'all like this lesson, can you please like and subscribe or you

Ceirín:

Guys perfect people to talk to this about, because I feel that way too. I listen to a lot of podcasts and they ask for the five star review, and I'm like asking a teacher for an A, right. God, I thought that was frowned upon. I thought you just had

Michelle:

To, I don't S one, the subscribe one. Subscribe is fine, but I would be like, can you rate it? I guess you want people to, I guess because people are quick to always rate something negatively. When you have a bad experience, you are ready to call somebody, get on the phone and be like, let me tell y'all about that experience. But if you have a wonderful experience, people will be like, oh, I had this wonderful experience, but I don't ever want to, no one shares it. So I see the point where people are like, it's quick for people to go negative versus positive, but yeah. Well, we got 10 people, right? Kari? Yeah, people and seven gave us rating. Yeah, 10 people gave us ratings on Apple, and seven people gave us ratings on Spotify. Okay. All right. And I'm pretty sure that some of those ratings were from our parents, but that's okay. Yeah, you got to start at home. You got to start at home. Yes. All right. So this game, it's called Flick or Hits. All right, so Flick means a movie or a TV series. I'm going to say movie more and hit means a song. So I'm going to give y'all the category, and the category is going to be very, very broad, and you're going to decide if you're going to try to find a hit or flick that represents it, and then I'm going to give you the question. Does that make sense?

Ceirín:

Okay.

Michelle:

Okay. Alright. So a movie or

Ceirín:

A song that describes what you're going to say to us,

Michelle:

What kind of encapsulates the sentiment around that thing? All. Okay, so let me give you, okay, so if I were to give you an example of it would be teaching and I would say hit. I'm going to go with a song, and then the phrase would be the first year of online teaching, and I would probably choose Deborah Cox. Nobody's supposed to be here because how did you get there? It's such a good song. I hear it in my head right now. The second you said it, because A, how did we get here? How are we online? And also no one had their cameras on, so it was just like I just saw myself singing into a dark room. I'm on a music video as Deborah Cox, shout out to her and her beautiful voice. Okay. Does that make sense on how to do this?

Ceirín:

Yes, but I think maybe Kari should go first so I can get another example.

Michelle:

Oh, okay. Okay. Or is it just me? No, it's you and Kari playing. It's you and Kari and it's fun. It's supposed to be a fun game. Less stressful. We'll see if this game makes it again to another person. Okay,

Ceirín:

Let's do it.

Michelle:

All right, so the first category is high school. So are you going to try to do a flick or a hits? Oh me, I'm going first. I'm going to do a hit. Okay. Ceirín, do you want to wait till she gives your answer or do you going to get in on this round?

Ceirín:

I'm probably going to do a flick.

Michelle:

Okay. Alright, so the question is your first day of high school, think about your first day of high school. Kari, give us a hit song that Encapsula is your first day of high school. For me, I would choose Woe by Black Rob because my high school was huge. There were over 4,000 students. I went to Independence High School in East Side San Jose, and so it was just, hello? Overwhelming. Okay. I don't know. Wo can you what song? It's that song he says like Woe through the whole song. Like whoa, like whoa, whoa, like whoa. Okay. Wow. Ceirín, don't

Ceirín:

Respect on Black Rob's name right now.

Michelle:

Michelle can sing though. Michelle can sing clearly not on the podcast, but not bad boy. Okay. Ceirín, you're giving a flick, right?

Ceirín:

I am just thinking about high school movies. I think one movie that stands out from that time for me is American Pie, and I'm not talking about any of the weird dessert related stuff. I think just the awkwardness of being a high school student and trying to find your place. I'm not admitting to any kind of bakery type stuff, but my point being is just listeners.

Michelle:

No American Pi for younger listeners. No, let's not watch that until we're, they

Kari:

Probably haven't seen it. They're too young to have seen it, so they probably don't even know what the three of us are thinking about right now.

Ceirín:

I'm not thinking about that scene. That's

Kari:

Not what I'm talking about. But that's why we're laughing though. Am I wrong?

Michelle:

No. Yeah,

Ceirin:

I just chose that movie because it's definitely young students trying to find their group and where they fit in. That's all I meant by that. Probably better examples out there. That's what came to mind.

Michelle:

Okay, that's fine. All right. Okay. All right. So your category now is College flick or hits, and I'm going to give you a chance this time to decide. And the question is, the last year of college, what was your last year of college? Can you give us a flick or a hit that represents your last year of college?

Ceirin:

I would say probably hit vitamin C graduation, just thinking about all the great times we had together as we go on and how I was going to miss all the people that I had made special bonds with.

Michelle:

Okay. That's actually a song that gets played a lot during promotions and graduations.

Ceirin:

Must be why it came to mind.

Michelle:

Kari, I'm going to get on this one. I'm going to say Jumanji because it was a struggle to graduate. I had, ironically enough, I had a math class that was a struggle for me to finish for me to graduate. It was applied calculus, and so it was a lot of, when I think of Tunji, I just like just the getting through all of the things. I actually, I'll tell the story another time around my graduation story. It's quite interesting.

Kari:

Okay, so for me, I'm going to choose. For me, this one's easy because, well, once I tell you, so mine is a Prince 1999, because that was the year that I graduated college. And so everything related to college. We had T-shirts that said, I'm going to party like it's 1999. And so that was just kind of the theme.

Michelle:

Fun. Spoiler alert. Prince is my birthday twin. Oh, on June 7th,

Kari:

I saw him perform one time randomly. I went to, this is when I lived in New York, I went to Prospect Park and they have free concerts and I don't even remember who the person was, but Prince just came out and sang a song and then left the stage. It was pretty incredible.

Ceirin:

That's awesome.

Michelle:

I want to live that life where I could just walk into a space and people would be like, you want to do something? I'm like, yeah, I sure do. Give me the mic.

Ceirin:

Do an impromptu math lesson on somebody.

Michelle:

I guess I do that every day. I got a bunch of people who could care less about what's happening in class, and I have to give in some every day to listen to my math lesson. I actually wish I would've met Prince just because I wanted to be like, we're birthday twins. I know.

Kari:

Yeah,

Michelle:

I actually know. Where was, do you

Ceirín:

Think he would've said to you?

Michelle:

I dunno. I don't know. He'd probably been like, what's your talent? And I'd be like, I don't know yet, sir. I'm still figuring out. I don't know. It's actually funny. For the longest time I would ask my son what my birthday was and he wouldn't know, but he'd be like, it's the same day as Prince. And I was like, really? He was. He's like, I know that much. I knew something about

Ceirín:

It.

Michelle:

He knew something. Yeah. Okay, two more. Two more. Hit or flick subject matter. So the question is, what is your overall feelings about math? What would be your hit or your flick for your overall feelings about math?

Ceirín:

Does Kari want to go first on this?

Kari:

Okay, I'm going to choose hit and well, this is hard because I can't sing, but you know that song, that's the I've got a friend in Me. That one Good one. Wait, what

Michelle:

Was that song again? Kari, can you do it again? No, stop it. Stop. One more time. I

Kari:

Couldn't hear mic. No, I'm not falling. I missed out on that. I'm crying laughing

Ceirín:

Right now. You cut that and then use that at the beginning of every show.

Michelle:

Yes. That definitely

Kari:

Needs to make the cut for our No, it's Nott. No, no. I'm crying laughing at my own singing right now. And Michelle's reaction to it too is really funny.

Michelle:

Okay. Are you going to sing?

Ceirín:

I'm going to choose a hit. No, I'm not going to sing, but I will tell you that I was kind of cheating right here as she was answering. And I tried to look for Hit called, I love it. Didn't find anything that I knew what that was, but I did type in. I like it. And I got three songs that encapsulate that. So one is by Cardi B and Bad Bunny. The other one is by

Michelle:

Is that because I like it like that? Up Up?

Ceirín:

Yeah, that's the one. And then you've got Enrique and Gladius featuring Pit Bull. I like it. That's a good one. And also a throwback, Sammy. I like it.

Michelle:

I like

Kari:

The way you look

Michelle:

At me. That one.

Ceirín:

Yes.

Michelle:

Any one of those three experience. That was a rude pause, bro. You were like, I don't know. That's the one.

Ceirín:

Any one of those three just because of the title.

Kari:

That's good. I love

Ceirín:

Math. I like it.

Kari:

I like

Michelle:

It.

Kari:

I like it. I like it. Okay, last one.

Michelle:

Flick or Hit

Kari:

Finances?

Michelle:

Your first

Kari:

Big

Michelle:

Purchase.

Ceirín:

I'm going to go with a hit again and it's going to be Chamillionaire riding because my first big purchase for me was buying my first car when I was in college. And it was,

Michelle:

That's what you see me rolling

Kari:

The hay tag? That one exactly

Ceirín:

Had the black Nissan Altima.

Michelle:

Yeah, I remember that card was rolling.

Ceirín:

I think I saved up maybe \$4,000 for that and my parents had to help me with the rest of it. But yeah, that was my first major purchase.

Kari:

Nice. I'm going to choose Flick for this one. And my first big purchase I would say is my house in Pennsylvania. And so the movie is a Wizard of Oz, and you know how she clicks her heels and says there's no place like home? That was the first time that I feel like I had a physical possession that I really cared about and I'm trying to sell it. So if of our

Michelle:

Listeners wants to buy a little house in Pittsburgh, Pennsylvania, am I allowed to say that? Whatever is our podcast.

Ceirín:

Fun city. I like that city. We'll talk after the podcast.

1:05:31

Um, okay. So we did it, we did it. We did it. We did it. We had our first guest. And like, I think that we've also have done this in the last few episodes. It's like, pour love onto people. And so I'm, Carrie, I'm gonna let you give care and appreciation because I want to in appreciation. Okay.

Kari 1:05:59

Well, okay, first of all, Ceirín, I want to appreciate you for being our number one supporter from day one. So you are Michelle's day one, you, you are our podcast day one. And so I just know

that whatever, we're going to publish that you're going to listen to it first thing and give us feedback to try to improve on it. And also, thank you for sharing today about your career. I've never met anyone who does work in forensic science. And I had all these questions about chemistry that you helped me to understand and kind of sparked my interest around the gas chromatography, mass spectrometer GCMS with the Coinstar analogy, which was so perfect. So I'm just very appreciative and grateful for your for your time today.

Michelle 1:06:56

Ceirín, you know, unequivocally I love you so much. And I just appreciate the fact that you like, you don't have to listen to this. You don't have to be supportive, and you're incredibly supportive. You're an incredibly supportive friends. And we have just like, grown together as humans. And I'm extremely blessed to have you, like a part of my family. My family loves us family. I love your family, as family. And it just, it is an a testament to like, if you have folks in your corner, you can do all things. And I really, really appreciate you. I will forever be a cheerleader on the side, on the sideline for you. And I just know that like your story, your thing is going to inspire some students and forge full transparency like, Karen is a black man. I don't know if you know if I'm black too. But Ceirín is a black man. And just being able to like, show other folks outside of the community that like there is amazingness, there's deafness. There's darkness that happens inside of our community and to be celebrated. And the fact that you have this really cool job that impacts folks, especially like folks of color, the fact that you can be that that person would be like, Nah, we're not going to just railroad people with fake science is a beautiful, amazing, transformative thing. And it's also great because you're like, cool, like he loves Spider Man. And, you know, like, we hang out and you listen to all kinds of music. And so that whole like, you, you are a nerd. But a nerd doesn't fit the mold of what people think a nerd fits molded. And I appreciate that. And you're just like a dope human. And I don't know how else to like, express it. But I definitely told Kari that I value your opinion. I value your perspective. And I know that if you think that this podcast is good, and we're doing good work, and we really appreciate you. So I love you Love you. Love you so much. And thank you so so much for coming on the show with us and sharing in, you know, hanging out with us. We really appreciate it.

Ceirín 1:09:26

Thank you. Thank you very much. And I just want to say how much fun I had showing up on a podcast. And I really am a big believer in what you guys are doing in terms of showing us that math is all around us and that everyone is a math person and math can be used to make a difference in a lot of people's lives in that it's not Something that you should feel afraid of or feel like, it's not for someone like you. I think that you guys are just doing a really good job showing how it relates to all walks of life. So thanks for having me, and it's been an honor.

Michelle 1:10:25

Hey guys, thanks for listening to Critical Math Drop with the homie Ceirín and this episode probably will be called math's best friend. So don't forget to continue to listen this is Michelle Cody and Kari Kokka, your favorite math teachers, we out.