#226 — STEM Gems with Stephanie Espy

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SPEAKERS

Stephanie (63%), Paul (17%), Rena (10%), Winston (9%), Transition (1%)

Stephanie Espy 0:00
I just wanted to change the world in some way. I wanted to highlight careers in STEM that most people may not think about, careers that are underrepresented by women. But they're phenomenal women. They're winning all sorts of awards. They're, they're changing the world, in their space, and so I want to share their stories.

Paul Beckermann 0:21
The topic of today's podcast is STEM Gems with Stephanie Espy. Unpacking Education is brought to you by avid.org. AVID believes in seeing the potential of every student to learn more about AVID, visit their website at avid.org.

Rena Clark 0:39
Welcome to Unpacking Education, the podcast where we explore current issues and best practices in education. I'm Rena Clark.

Paul Beckermann 0:51
I'm Paul Beckermann.

Winston Benjamin 0:52
And I'm Winston Benjamin. We are educators.

Paul Beckermann 0:55
And we're here to share insights and actionable strategies.

Transition Music 1:00
Education is our passport to the future.

Paul Beckermann 1:05

Our quote from today is from the website for the book STEM Gems, which is actually written by our guest for today, Stephanie Espy. So one line on our website reads, "You can't be what you can't see." All right, Rena, with that, what are you thinking about that today?

Rena Clark 1:23
Honestly, it makes me think a lot about my daughter, my son, too, but really my daughter, because I think of, I'm in STEM education now, and when I was a young woman or a child, I didn't have the opportunity to see women in many STEM fields outside of education. And also growing up in a more rural town, I just didn't have that exposure. I didn't have those types of role models. So it was difficult for me to imagine all the things I know now, then. And so I think about my own daughter, and you know, she's been privileged, we've had exposure, and I bring in books and things and even the way we play with them, these computer science cards that have all these different women. And she gets so excited She's like, I just want the Grace Hopper card. I want the Grace because we've read that book. And I just get excited that she has people that she knows about and can look up to. And I think that really improves her ability to see herself in those different careers.

Paul Beckermann 2:27
That's awesome. I appreciate the personal connection there, Rena. Winston, what about you?

Winston Benjamin 2:31
For me, that reminds me of a language that I use in a lot of my classes in education. We talk about providing students with windows and mirrors. And it's important. Windows and mirrors. Windows as in a way of seeing into someone's world and someone's understanding, to be able to say I know something about this. And also a mirror to be able to see themselves as reflected through the material, through the engagement. So this reminds me of that idea of providing not only the students who are the most outside of STEM education a chance to see themselves in STEM education, but also those who are inside of it to be able to acknowledge that not everyone who's doing STEM looks, sounds, engages like them. So how do they open up the space and also welcome those who are newcomers? Right. So that reminds me of the need to not only have mirrors to see ourselves, but also the window so someone else can see through and accept another place and another way of being in STEM, in anything in life.

Paul Beckermann 3:38
That's a great metaphor, and I love that you need them both right, the mirrors and and the windows. Cool. Well, we're really excited to welcome Stephanie Espy to the show today. Stephanie is the founder of MathSP, co-founder of Knowledge for College and the author of STEM Gems. Welcome, Stephanie.

Stephanie Espy 3:56
Hi, thank you so much for having me.

Winston Benjamin 3:58
How are you doing?

Paul Beckermann 3:59
We're excited to have you here.

Stephanie Espy 4:00
Very happy to be here.

Paul Beckermann 4:02
All right. Well, let's start out with with kind of a basic question for some of our listeners. Let's start with STEM. Why is that important to you? How did you get interested in in that area of study? It's kind of the personal story.

Stephanie Espy 4:16
Yeah, you know, I, I come from a family of engineers. So growing up in my house was probably different from most because both my parents are engineers. My dad's an electrical engineer. My mom is environmental engineer. And both my parents love math. And both of them are just huge advocates of exposing their kids and, you know, the kids, their kids, the friends of their kids, to just real world stuff that relates to STEM. So I have lots of examples growing up with my mom and going shopping but we used to have fun calculating the percentages. The percentage, you know if something was on sale, and it was a certain percentage off, we would play a fun math game, and we would figure out how much we were saving and how much you would have to spend. And that was just a routine fun thing that we would just do. That was just normal to do. And we had a coupon that will be an extra percentage off. So what would it be with the coupon or without it. And so that was every day for me. Even at home, when we were cooking, we were measuring, we were doing ratios just for fun. And my dad was the the physics guy, the engineer that like to take things apart and put them back together. So my dad had three daughters. So we were sitting next to him, doing what he was doing. That was just again, it was part of our normal, normal, everyday life. And I grew up to have a huge affinity towards math and science, not only from my parents, but also from my teachers, and also just extended family members, my aunts, and uncles, and, you know, other people around me were also in the STEM space. So that is what I saw. So going back to that, that quote, you can't be what you can't see, for me, I definitely saw people of color in STEM, women in STEM, just in my own family. So but I realized later on in life that not everybody has that. So I wanted to kind of give back in that way. You know, I had role models, I had mentors, but not everybody does. So when I was in high school, I loved chemistry, I loved math. That's how I decided to study chemical engineering in college. And, you know, I just wanted to change the world in some way. And I wanted to use chemical engineering to do so.

Rena Clark 6:38
And we'll get into kind of how you transitioned, but you did write this book called STEM Gems: How 44 Women Shine in Science, Technology, Engineering, and Mathematics, and How You Can, Too. So could you just tell our listeners a little bit about what is this book about and how you were inspired to write this book?

Stephanie Espy 6:59
Absolutely. So it was, um, the book is about amazing women in STEM. So the reason why I wrote it is because I wanted to highlight careers in STEM that most people may not think about. Careers that are underrepresented by women. And you could go your entire life without really considering some of these careers. So I feel like they're not well known. They're not in popular media. They're certainly not in your movies and on your big screen. Maybe you'll find a Netflix show down the line somewhere where there's a character that plays the role. But these are careers that don't get enough time in mainstream media. So it's really important to bring them to the forefront to increase their visibility. So I was, I wanted to increase the visibility. And I wanted to share the stories of women in these careers. So the first part of it was just brainstorming careers first that I wanted to highlight that, again, go unnoticed, that can go your whole life without really considering and then I just did a lot of research to find a woman in that career, in that field. And these are women that I call the Beyonce or the Taylor Swifts of their field. So they are amazing women. These are, you know, it took three years to write because they're so amazing. And they're so busy, incredible, doing great things. So it was a lot of back and forth, but a lot of waiting and waiting for them to actually reply and get things done. But they're phenomenal women. They're winning all sorts of awards. They're, they're changing the world in their space. And so I want to share their stories, and also share more about the career and how to get into that career. So I wrote it because as a chemical engineering student, I'm both undergraduate and graduate student, as well as having worked as a chemical engineer, I just did not see enough woman. And I always kind of wonder why. Because again, growing up the way I grew up, where there were women, my mom, my aunt, cousins, female cousins, my sister is an engineer, as well. So, there were plenty of women in my life that were interested in engineering, math and science. But when I get into the real world, when I get to college and beyond, and get into the real world, that's not the way it is. That wasn't my experience. And it's not the experience of so many other women. So I wanted to, I just thought what can I do to help more girls to see themselves in STEM careers? And so that is ultimately why I decided to write the book and profile the women and their careers.

Rena Clark 9:39
So you talk to 44 women, but can you highlight maybe a story or two or something that might just spark a little interest for us?

Stephanie Espy 9:47
Yeah, absolutely. So I like to always talk about the fact that engineers are, you know, are, of course very math and science driven, but we're also people that love to do fun stuff. Like, you know, I grew up playing the flute. I was, you know, I love music. Also, I'm five eleven so I got into modeling as a, you know, side thing when I was in college and so multiple interests, right? I can, I can be in class and study thermodynamics, and then I can, I'll go and do something completely different. And I wanted to highlight that sort of aspect of women in STEM, because I think a lot of people just have the stereotype of what a woman in STEM looks like. So one of my favorite stories is the story of Pardis Sabeti. Pardis is a geneticists and microbiologist, and she's done a lot of work decoding the Ebola virus, but also Pardis, on the weekends, is a, is a singer in a rock band. So by day, she's this scientist and she's a professor at Harvard. And she's young, and

she's cool, and she's smart, you know, but then she'll go, and she'll rock out with her band on Saturday night. So again, it shows you that you can have multiple interests. You don't have to just be this stereotypical woman in STEM or STEM person. You could have multiple interests. You can pursue other hobbies and passions, while you're also a woman in STEM. So I think she's one of my favorite stories that shows that sort of like, duality of you know, you can do whatever you want. You can pursue other things, as well.

Winston Benjamin 11:22
I appreciate the duality of multiple identities as you're discussing. So one of the things that I that I'm thinking about, as we talk through, you showed us that you have tons of mirrors, right? You see yourself, you see other people in your community as, but you also have a goal for writing this book. And I think that is the window part. Right? So I'm asking you just a quick question like after writing this and having these stories out, what is your hope about the impact that will have towards those who are looking for STEM role models?

Stephanie Espy 11:59
That is amazing question. So, you know, it started as a book, but it has become way more than that. So now STEM Gems is an entire nonprofit. And we have programming. So we use, we use the book to center our programming. We have clubs and various schools across the country that use the book as, again, the cornerstone of the program, of the club. We also have summer camps. We have summits. So there's a lot of things that kind of coincide with the book, to make the book come to life. To your point, to write it, and to hope that somebody picks it up and reads it. With nothing but community around it, to create programming around it so that the intention of sharing these amazing careers and sharing the stories of these amazing women, that is that is actually fulfilled. And it's fulfilled through the clubs. It's fulfilled through the summer camp, fulfilled through the summit, as well. So you're walking away, having heard from women themselves, the women in the book, as well as other women in STEM, having had a chance to do hands-on activities that relate to each of the careers in the book. So you can see, you know, if you like the activity, perhaps you'll like that career. So very much a linear relationship between the activity and the career and the woman. So it's more kind of concrete to have those things in place so that girls who are reading the book, girls who are engaging in the programming, can have a true understanding and then really can truly see themselves like in that career, in that space, just like that woman. So that is sort of what has happened since, you know, publishing the book. These other things have opened up, in order to make the book more, just to make sure that it's having that impact. So, you know, we've had girls who have come into our programs who had little to no interest in STEM, but then walk away having it, you know, increase their interest or their interest in STEM dramatically, who come into the programs having very little confidence in their ability to excel in a STEM career have walked out, having a way higher confidence in their ability to pursue a STEM career later on in life. So we, you know, we're measuring sort of how they are coming in, how they are, when the program is, is over, so we can make sure that it's having the impact that we want, which is them having increased confidence, them seeing themselves in a STEM career, setting themselves at this point in their life, a STEM Gem. And just increasing their interest in one or more STEM careers, as well.

Paul Beckermann 14:36
That's so cool that the book sort of has come alive for you and become this tangible product, you know, and all this programming. Could you maybe take a minute and dig into one or more aspects of that programming, maybe tell us what, what it's actually like and who is it for? How do people get involved in that? Maybe just a little bit more about that?

Stephanie Espy 14:56
Absolutely. So the STEM Gem Summer Camp is, is, we partner with here in Atlanta, we partner with Georgia Tech, which is, you know, I just read today that it's the number three engineering school. So we partner with the College of Engineering and we host. Last summer we hosted or this past summer, we hosted 50 girls on their campus. These are rising, they applied in the summer, so they're rising in 9th and 10th graders, or so entering into high school, or just finished a year of high school. And they spend one week on campus. And we do, everyday we do different hands-on activities that again, connect back to the current one of the careers in the book. So we have a chance for them to do something fun and exciting. And then, you know, have them think about what would their life be like if they were in that career, based on their experience of activity we're working with, with Georgia Tech, engineering students that are in pursuing their PhD. So they're the facilitators, they have a chance to meet, you know, real Georgia Tech students that are working in engineering space, we visit lab tours every day, so they have a chance to visit a lab and see cutting edge research from Georgia Tech professors. Our culminating day was professors themselves coming and having lunch with our students where they have a chance to meet professors and sit and ask questions and talk. We did a college admission session. So they understood what it takes to get into Georgia Tech, and what's required in high school for them to apply and get accepted to Georgia Tech. We did, of course, tours of the campus, labs, lots of activities, meeting lots of students, and professors. So that was the experience of the summer camp. At the end of every day, we had a special conversation. So really pertaining to growth in particular things like a growth mindset versus a fixed mindset, and how does that apply to them where they currently are in life. Things like taking risks, and why those are so important. Risk-taking why that's critical to achieving something. We talk about stereotypes, and how do we, you know, how do we navigate past those stereotypes? And how do we, you know, keep our confidence when we encounter situations and people that, you know, tell us we can't do something, or we're not good enough to do something.

So those conversations at the end of every day were transformative. I mean, we had girls opening up and sharing their personal stories, and really heartfelt about their own experience, their their personal life, their home life, their school life, things they've gone through, and really seeking advice on how to push past some of their challenges they've already experienced. So it was, it went from like 50 girls who were very shy and quiet and didn't really engage as much on day one to like, by day three, they were best friends, and they were just opening up. And you know, I think 90% of the girls want to come back next summer. You know, it just, it was just definitely one of the highlights of my work, seeing them transform throughout the week and seeing, you know, their confidence improve, and their interests improve, as well. So that was that experience. The club is a similar experience, except for it's in the schools, it's like an after

school club. And that's kind of year-round. The year starts around August, September timeframe when school starts, through April-May timeframe. And the clubs are run by educators in the school. We try to create that same sort of experience where we do different activities, where we learn about women in STEM, when we get to meet real women in STEM, we have those special conversations that are particular to women or to girls. So that's sort of the model where we bring the club, bring it into the schools. And then our summit is an opportunity to kind of come together parents, educators, and girls. And just hear from women in STEM directly and hear directly from their mouths have them tell their stories, have them talk about what they do. Have them talk about the impact they're making in the world. And also talk about you know how, how to get involved even at an early age and if you're interested in cybersecurity or computer science, or data science, or actuary science, or engineering--you know, things that they can get involved with right now. Professional organizations that support K through 12, and how to, you know, get a mentor right now. They can take that on, you know, even at an early age so that's the summit. It's really interactive and it's for not only the girls but also their parents and teachers as well.

Paul Beckermann 14:58
So who can get into this thing, like I can hear listeners right now saying this sounds amazing. I want in. So who is it available to? How does somebody maybe make this connection?

Stephanie Espy 19:54
Yeah, for the club, it's easy to start a club at your schools. All the information about starting a club is on the STEM Gems website. So there is a link on the website where it says club and then it's all the information about starting a club. And then once you start it, and we're, of course supporting you, and running the club in your school. For the summit, that's more so people that are in the local area. We had the summit virtual a few years, of course, because of COVID, but we're back to having an in-person summit. So that's for people who are able to come to Atlanta in March, and just be, you can be a part of that in person. And then the summer camp--we are hosting again at Georgia Tech next summer, but we'd be, we would love to have other camps, perhaps in other places, as well. So we're kind of looking to grow that into other cities. So if you're interested in learning more about that, and helping us to start a camp, you know, in your local area, please reach out and we can see about getting that going.

Rena Clark 20:59
I just love listening to you. And I feel like I can feel our audience can feel your passion around STEM education and the work you're doing with all of these young women. And I'm just curious, as you told us earlier, you were a chemical engineer. So I'm gonna, how did you get into STEM education?

Stephanie Espy 21:19
Good question. And I'll just say first, I never saw myself in education. So it was definitely experiences, right? Again, in high school, I was, my mind was focused on chemical engineering. That was the career I wanted for myself. Got into that career, but what happens is that, you know, you experience certain things that kind of pull you in other directions. So I just sort of got

pulled. Next thing I'm applying to business school, and then I'm starting a business. So it was just, again, experiences being in the classroom, being in the workplace, wondering, and, you know, how do I solve you know, as engineers, we want to solve problems. So the problem I wanted to solve was like, why aren't there more women in this space? All the women that are here are in administration or in another department. Why am I the only one here and I'm just an intern, you know. And so it was those sorts of thoughts, and wanting to solve a problem that kind of led me to this path. So again, I never set out necessarily to go into STEM education, but I felt like, I had something I could offer. And I felt like I had, you know, I didn't see enough being done that, that I wanted to contribute to. So I was like, well, I guess I could create something. And so here I am, you know, that's that's sort of how it happened. But it wasn't, you know, I'd to say was God just steering me down this path, because it just wasn't something I set out necessarily for. But as I look back at, again, my parents, my aunts, cousins, sister--they're all still engineers. They're, you know, I have an aunt who's a professor in engineering, and our cousins are professors and they're also educators in that sense. They're professors of engineering, and they have graduate students that work under them and all of that. So that's, that's education, for sure. But they're also co-founders of a technology company as well. So they, you know, were multiple hats. Um, but if I want to do this well, you know, something had to give. So it was, it was sort of like, I had to pick. And so I ended up deciding to go full-time down this pathway of STEM education. And I don't regret it. Here. I am.

Winston Benjamin 23:36
Appreciate that. So I got a, I got a question for you that's focused in on something that you already said. And I go, Yeah, I gotta, I want to fix things, so you start something, right. And then there's a purpose at the start. So you're the founder of MathSP, SP coaching. So I just got a question. Why is the coaching part an important part of what you do? And what led you to think about coaching as a part of your organization?

Stephanie Espy 24:05
Yeah, so MathSP coaching was actually my first sort of solution to solving the problems. Like, okay, you know, I'll sit down, I talk to my dad, and other people in my family, and I said, you know, help me understand this. And so my dad in particular was the one that was like, the problem is math. There's so many girls that just don't like math. And if they don't like math, they're not going to go into engineering, or any sort of math-based STEM pathway. And so he said, If you can get more girls interested in math, then perhaps you can get more girls to think about, you know, a STEM career, in particular, engineering. So I was like, huh, cuz I've always loved math. I always loved math. So thinking about how so many girls, in doing the research and understanding and learning more about math as a deterrent is what led me to start MathSP so I was like, okay, I guess I have to help them understand that math is fun. And it's so many applications, you know, because a lot of times you hear like, when am I ever going to use this? Why do I need to know this? That's what you hear. So I have to help them understand how they are going to use this, and I have to help apply it to something they care about. And that was me, you know, that was my big idea of starting MathSP, and doing, having the coaching aspect so that can...What do you love? What do you like to do in your free time? Okay, so let's talk about how math is associated with that, let's connect what you're doing in the classroom to something

you care about. And that--so I have a team of STEM professionals who also just have this desire to, to help people make those connections. And so they, you know, they're coaches, and they sit with students, and they help them with their schoolwork and their content, but they also they help them understand again, why? Why they're learning what they're learning? How it applies, why it's important. And then a lot of these kids, because of the coaching, they decide to go down a STEM pathway, which is, of course, like, the ultimate goal, like the big win, that they decide huh, STEM is actually kind of cool, it's actually kind of fun. It's actually really exciting. And so then we can transform their lives, and we can help them and we can kind of mentor them down this pathway. So that's, that's how I started, you know, STEM Gems, writing the book, and the programs. That came much later, much after MathSP coaching. And it was you know MathSP coaching is for boys and girls. It's for anyone, but STEM Gems is just specifically for girls. I noticed that with MathSP, It was a lot more boys getting the coaching and the girls were like, okay, I need to do something just for girls. And so that's sort of like, later on, how STEM Gems came about. But yeah, MathSP is really open to anyone that wants to, to expand their understanding of math and science, and learn from math and mathematicians and scientists and engineers who are just really passionate about the content.

Winston Benjamin 27:04
Nice, thank you.

Paul Beckermann 27:07
I love how your, your kind of career projection has sort of morphed into what you're seeing along the way, the different problems that you're seeing as you go and you kind of go into a new adventure. And I think I saw that, that you've been doing some diving into sort of college admissions kind of things, too. So let's just say you actually hooked these kids now. And they are fired up and they want to go into these STEM fields. Do you have advice for them for successful college admission? Because that's another hurdle, you know, another problem that they have to solve.

Stephanie Espy 27:41
Yes. And so part of what MathSP does is help students with all the different standardized testing, including, you know, everything from the SSAT all the way to the SAT, ACT, and then beyond as well. And so, because that test is, again, a lot of people's frustration, right? It's like, oh, I have to take this test. Or parents say oh, my child doesn't test well. They do well in school, but they don't do well on tests. I hear that time and time again. And you know, these tests, I've taken many tests, you know, for graduate school and everything, so there's definitely, definitely strategies to test-taking. And so it's not the kind of thing that you can just walk in. Oh, without having zero prep or zero understanding of what you're about to do, then expect to do your best. And so if you don't know the language of the test, and you haven't practiced, and you don't know what the questions look like and how they're phrased, you don't know the strategies to this timed test, then you're just not going to do your best. And so, again, kids who do well in school don't do well on the test because they haven't been trained on the test. So that was another kind of arm or branch to MathSP coaching is okay, yeah, we've helped you with math and science, but we also can help you master the test and help you understand the language of the test and

strategies that are important to taking the test. So you're not walking in there blind, without having done anything. And you understand how to take the test. And again, because I've taken so many and I actually find them a little fun, I mean I know that's not common but they're they're strategy. It's a lot of strategy to it. It's problem solving. So I enjoy that so I'm able to help other people you know, maybe not enjoy it, but at least like...

Winston Benjamin 29:33
I was gonna say that's your engineer brain. No.

Stephanie Espy 29:38
Take away the fear. Take away the confusion. Take away the, you know, I hear all the time man that was so easy. That was so easy, where initially it was like, I don't understand this. This is hard. Then it goes to "that was so easy." So that helping them understand it, it gives me quite pleasure and delight to help them kind of see something that's a little intimidating at first but then you go through it together, and you realize, oh, that wasn't that bad after all. But you have to understand the test and what they're asking you for. So, that's the other part of MathSP and, again, we hope not only high school students, but we also help people that are, you know, applying to graduate school, business school have math. You know, any kind of math test that has a math component, you know, we're here to help. So a guidance of the cognition space, because so many people again, I was hearing so much of the "Do well in school, but not doing well on the test, and why not?" And then parents assuming well, my kid is just a bad test-taker. Well, not necessarily. They just don't understand how to take the test. So that is my college admissions sort of work. I don't, I don't necessarily do a lot with, you know, choosing the right college for you, or you know, the essay component, which are huge, you know, they're a major part of applications process. I focus more so academics. You know, choosing the right classes, and of course, helping you with the content in those classes, as well as the test itself and helping you maximize your score. Because, you know, there are, of course, a lot of schools that are test-optional, especially since COVID. But even before a lot of test-optional schools, but they're still very important for applying for scholarships, for example, you know. We may have to apply to a test-optional school, but if you want scholarships, having a good test score is still a part of getting fellowships. So, you know, for the foreseeable future, the tests are not going anywhere. So it's just, let's just tackle it, and get it done. So that's, that's another, you know, our coaches, we really enjoy helping students to understand that a little bit more, and even the overall college admissions process. We can talk a lot about the process and what's important. As an MIT alum, I get a chance to interview local candidates. And so I stay very much connected to, you know, today's generation of applicants and what they're up to, and, and connected to, college admissions from the college standpoint, and what they're looking for. And so just sharing that knowledge as well, what that process looks like, what it takes to get accepted, or, you know, to best position yourself, I should say, for acceptance, putting your best application forward. And then I have partner organizations that I work with, that can really help drill down on the actual essays themselves and, and telling your story, which is hugely important for college admissions, telling your story, you know, who are you? What is your passion? How do you want to change the world? Make sure that comes across in the application. That is, you

know, the work of other people, but my work is really the math, you know, the actual content and the test.

Rena Clark 32:45
So I'm just curious, because you've, you have a, you know, a finger, a pulse on what's going on. Are there any, like, tips that we might have for our listeners, or for students themselves preparing for these tests that you might give to those kids that you work with?

Stephanie Espy 33:03
Yeah, so first thing is, as I said it before, but I can't underscore the importance of, just the practice of it. Again, I hear a lot of people walked in and took the test. Or just, you know, especially the PSAT, maybe not the SAT, but the PSAT they just didn't even know they were taking it that day at school, or they just, you know, no kind of prep at all. And I'm like, okay, well don't do that for the actual for the real test. Like make sure that you get some kind of prep. So whether that prep is free prep. There's a lot online. Free prep, especially with Khan Academy, partnering with college board and offering kind of free online prep. For a lot of kids, that's all they need, you know, they can self study, and they can just, you know, do it on their own. That's great. But but other kids, you know, need that guidance of someone to really help them tackle the tests. That's where, you know, a coach comes into play or a tutor or somebody that can really sit with them and help them understand the test better. So that would be my, my advice is, you know, is always to take a practice test first. Just jump in the pool, right into the deep end, take that practice test, score it, see where you are, without any prep. And then that baseline score will help you determine what type of prep you need, whether if you're not very far off from your goal, your target score, then maybe Khan Academy is going to be enough for you. But if you're like hundreds of points away from your target score, and you're really trying to get into a competitive college, then that may not be enough, especially if you know yourself or know your child. You may need that structure, that course, that person, whether it be like a recorded class or a live class, in-person, virtual, whatever it is, but knowing yourself, knowing your child, figuring out where you are right now, what your baseline score is, and what your target score is, and you know how many more points you need, and how you're going to get there. So just having the plan I think that's my advice. Have a plan. When are you going to take the test? It's offered seven times a year, you know, when are you going to take it? Planning around extracurricular activities and other things going on in school. You know, lots of juniors have AP classes and lots going on that junior year when it's time to take the test. So just planning for it, knowing that it's there, and planning for it is my best advice, you know, versus like, just, oh my gosh, my test is in a month! I get called all the time. I'm like, okay.

Rena Clark 35:35
Okay, you can kind of connect it and find that child's interest or anyone's interest, but you're like, if you're playing a sport, you don't just go out and play a game you need to practice and you need to figure out where you are and what you need to work on. Same with music. You don't just go and play show without any well, some really, really good people maybe do, but I know. So you need to practice. So I think that's something solid. Well, speaking of, you know, advice,

we're going to actually get into our toolkit here. So it's time to ask the question, what's in the toolkit?

Transition Music 36:10
Check it out, check it out. Check it out. Check it out. What's in the toolkit? What is in the toolkit? So, what's in the toolkit? Check it out.

Rena Clark 36:22
So Winston, I'm gonna go ahead and have you start us off today.

Winston Benjamin 36:26
Usually, I throw multiple things in the toolkit or something in this one, I am going to say STEM summer camp! I think you should try and check it out. STEM Gems, to go into it because for me it sounds like a natural way of making STEM real to students. As we always recognize at the start, is the best way to make students believe and want internal motivation. So I think this gives students a really nice opportunity to develop their own internal motivation. So I would throw that in a toolkit any day.

Rena Clark 37:03
And just out there, I know like in our area over here, there's all kinds of STEM camps and opportunities. And you can kind of look through that. I love that y'all have it very much connected to the university. But there's just kind of, search out some opportunities for students, especially ones that have maybe free programming, scholarships, and things like that, and then promote that, especially when you're making those family community connections. If you can make it easier for them, they're more likely to apply. I was just adding on to you, Winston. But I, I love the idea of--I work mostly with elementary students, and just having a presence in the classroom to having books accessible for independent reading time or read-aloud. I love the Women in Science postcards. You can get those like, and I give those out to people or send. It's just like fun. I talked about the like computer science women playing cards, like incorporating those when we're playing different games or math games. So it's just an added little bonus to kind of create more of those windows.

Paul Beckermann 38:09
And we've, we've talked a lot about the older students, you know, and as they're approaching college age, we've actually got some resources on AVID Open Access that kind of span the gamut a little bit. There's some free lessons, free STEM lessons out there. There's some on coding and robotics or some on cardboard engineering. So if you don't even want to get into the digital aspect, you can do it offline. But there's some really cool activities with full lessons that you can just go there and take and implement with your students in your classroom. So I encourage you to go to AVID open access.org and then search it out. Look for coding and robotics or search for cardboard engineering, and it'll take you right to a page with all kinds of resources. Stephanie, you should drop something in the toolkit. You're our special guest today. What do you have for us?

Stephanie Espy 38:56
I would love to! Um, I think it's just really, really important to make the connection between like what activity you're doing to a real career. I think that connection is sometimes missing. So, I mentioned I think before we started that I have a 10-year-old daughter who's in fifth grade, and you know, elementary school, they're definitely a lot of hands on. Now they're going to their Makerspace and they're building and doing different things, but I don't know how much emphasis is put on like the, like what you could do with this as a career, you know, or integrating a person or career to that activity. So the activities are going to be fun and exciting and they are but going that extra step. And so Rena mentioned the flashcards. I think those are great. You know, books and flashcards around real people and the real careers, I think is that missing part a lot of the times for that age group. So I would just add that to the toolkit. You know, the more books about women in STEM, people in STEM, and also the careers themselves, focus on careers. The more connection you can make, I think the better. I like to tell students all the time, like you're already an engineer. Like, how many of you like to create? Hands up? How many of you like to build? How many of you like to experiment? How many of you like to...and just give me different verbs and then throw them out? If you already like to do these things, you're already a scientist. You're already an engineer. You're, you're already there, right? These things you already enjoy doing? What would it look like to have a career, you know, and actually make a difference in the world doing these things. So that connection, I think, is something that I want to throw in the toolkit and just making sure that it's always a linear connection between what you're doing and then kind of why it matters.

Rena Clark 40:40
I just think that's so important. And even taking it one step further--I also have two 10-year-olds--but I remember last year, because my my own children were talking about you know, they were in a science group, but then bringing in a guest. And it's, I feel like easier and easier these days with Zoom or virtual, however you're doing it. And then they had one woman come in, and she was talking about how she used coding to program drones to follow the pods of orca whales, but like talking about how she was actually using what they were doing in this career that they didn't know anything about, and how it just really resonated with the students. It was really powerful.

Winston Benjamin 41:22
So I am a hip hop head and I love the fact that you named STEM Gems, because growing up, everybody who talked to me whenever they told me something important in life, it was a gem. They dropped a jewel on me, right? They put something in my in my treasure. So I'm gonna ask this one question. This is our segments called The One Thing. So what's that gem? What's that jewel that's still rolling around in your treasures. Anybody who would like to share. What's what's your one thing that you're still, you know, going through your head?

Transition Music 41:54
It's time for that one thing. One thing. One thing. Time for that one thing.

Paul Beckermann 42:04

That one thing.

Winston Benjamin 42:07
Rena, you want to start?

Rena Clark 42:09
I really appreciated, you kind of pulled out that story from your book. Because I like this idea that you can have multiple interests. Because sometimes, we don't really explain that to students. Like, you have to be this or this or this. But it's like, as you said, you already are a scientist, you already are into STEM. And you could, that's awesome and cool. But you can also be this as well. And that's fine. So I just love that really thinking of the whole child and it's okay to have multiple interests and thinking about how they can actually complement each other and help you be better at both.

Paul Beckermann 42:50
Personally, I thought it was cool that that teacher was in a rock band. I thought the rock band part was really important.

Winston Benjamin 43:01
Paul, since you, since you seem to be connected to that, what's your one thing? What's still in your mind?

Paul Beckermann 43:07
Other than the rock band? No, but no. It's really about that connection piece again, because I could honestly see somebody being connected to that teacher, Oh, wow. They're in a rock band, and then finding out that they're also an engineer and thinking, Hmm, I wonder what that's all about? I think it's all about the hook. How can we hook these kids and get them interested. And it's not going to happen unless we expose them to this content in some way. So it's that exposure and opportunity to hook them that I think really stood out to me.

Winston Benjamin 43:45
See, like that's why we work together as a team, like our brains are synced, our brains are synced. I'm going to extend it to say holistic work. Because there's there's the importance of doing it in the classroom. There's also the importance of doing it in the world outside of the classroom. So helping students see that it is possible, or the value of math that outside world, because I still remember the Pythagorian theorem--A squared plus B squared equals C squared. Have I ever really used it in my life? I don't know. So helping make that, all my math teachers thank you all for beating that in my mind. But why is it valuable for the use outside so that it not only just become something you memorize, but something that you internalize as being valuable? I'm gonna ask you Steph, Stephanie, my fault. I always give nicknames. It's one of my things. What would you like to throw into our one thing today?

Stephanie Espy 44:46

I would love to add to what you all have already said and maybe just encourage teachers and parents to to encourage students, even those who are not I very forward are very vocal about their interest in STEM. So, you know, again, I have a 10-year-old, and if I were to ask her, hey, do you want to go to this summer camp? No! She was, she may say, no. She has said no. Then I'm like, why am I asking? You're going anyway. And I've sent her, and she's like, it was the best thing ever! Of course. So I think it's important to not only attract those that you already know have the interest, but to nurture the interest even in students that haven't expressed interest. So introducing them to STEM even though they may not have expressively stated interest in STEM. So again, for teachers and parents, it's just, introduce them--and don't wait for them to ask. Just put them in the experience, and then you may then spark the interest. So I think that's my gem. I would like that.

Paul Beckermann 45:55
Thank you for that. And thank you for being on the show today, Stephanie. It's really been a joy to having you on and talking about this.

Stephanie Espy 46:02
I totally agree. I really appreciate it. The conversation. I could talk for a whole other hour, but thank you for allowing me to share.

Paul Beckermann 46:11
You're very welcome. And I think back to that first quote again, "You can't be what you can't see." If seeing is believing, you are creating believers. And kudos to you for that. Thanks for being here.

Rena Clark 46:28
Thanks for listening to Unpacking Education.

Winston Benjamin 46:31
We invite you to visit us at AvidOpenAccess.org where you can discover resources to support student agency and academic tenacity to create a classroom for future-ready learners.

Paul Beckermann 46:45
We'll be back here next Wednesday for a fresh episode of Unpacking Education.

Rena Clark 46:50
And remember, go forth and be awesome.

Winston Benjamin 46:53
Thank you for all you do.

Paul Beckermann 46:55
You make a difference.