

Mark Royce: [00:00](#) Hi **Tanea**. Hi Ariel, how are you?

New Speaker: [00:02](#) Hi, I'm doing fine.

Ariel Serkin: [00:04](#) Hi, it's nice to be here today.

Mark Royce: [00:07](#) We're really glad to have you here. I'm very much looking forward to our discussion today where we're going to be kind of focusing on the whole idea of diversity, equity and inclusion. I'm excited too. You guys have posted a wonderful article, a challenging article, I will say, on the modeling instruction.org site. They have a blog area there called M to M modeler to modeler. And your post was quite intriguing and I love the fact that the two of you decided to collaborate on it. So, but my first question for you guys is how did you meet, how did the two of you get connected?

Ariel Serkin: [00:48](#) Originally Tanea and I were in the 2018 leadership training cohort for AMTA. So we had met through the online discussions and we had some web meetings ahead of time and we met in person at the conference or the workshop in Arizona. So I flew from Massachusetts to Tanea's hometown and we spent really an intense time working and learning together. Tanea's awesome. So I was really excited to spend time with her.

Tanea Hibler: [01:24](#) Yeah, it was, it was actually great because I'm a biology teacher, so if I hadn't have gone through the leadership training, I probably wouldn't have connected with Ariel the way that I did. And I got to see and experience a little bit about how the physics teachers, their concerns when they're teaching their courses modeling. And then I got to see chemistry, I got to see middle school modelers, and then I also met, um, I think there were a couple of other biology modelers there too. So it was a really good opportunity just to collaborate with people across different disciplines

Ariel Serkin: [02:02](#) and location. So it was really fun to meet teachers from across the country. You know, I'm here in the Northeast and today you're out there in Arizona.

Mark Royce: [02:13](#) Taneya how did you first get introduced to modeling?

Tanea Hibler: [02:15](#) I actually started, I took my first modeling class was actually a physical science modeling class because when I first started teaching I was teaching an introductory science class. And my first year was like the worst year ever. I was pregnant and my father died of cancer that year and I was going to school at

nighttime and I felt like I was unprepared to be in the classroom as I did some research and I found the modeling course. I signed up through ASU. So I took this course and I felt like it just gave me--even though it wasn't biology, it gave me some skills that I needed. And I ended up teaching a physical science class, at least one year. And more recently I moved internationally and then I came back to Arizona. And when I came back to Arizona, I was focused on teaching environmental science and biology. And when I heard about modeling and biology, I signed up for the course right away. So I've been, reintroduced into the modeling community and for about the past three years, maybe four years, and I have delved like headfirst into it. So when the opportunity came up to co-teach a summer workshop, I said, yes, I will do it. Please let me.

Mark Royce: [03:39](#) Wow, that's awesome. Now, both of you have expressed to me a little bit that modeling was a very powerful tool that you found. And so tell me a little bit, each of you and then we're going to get into the equity idea, but, but I'm curious about how would you describe to our listeners that modeling kind of influenced you when you discovered it?

Tanea Hibler: [04:03](#) Do you want to go for a cereal or you want me to go first?

Ariel Serkin: [04:06](#) I'll go first this time. You'll go first next time. We're a pair. Uh, my path to modeling is different. I've been teaching since 2001 but I taught history for my first 10 years. So I'm a historian by training. And one of my passions when I taught history was using primary source documentation. So whether it was an actual document or photographs or other political cartoons to help describe things and have students develop an idea of how they could understand what was going on in the world. In other words, they were developing a mental model. I didn't have that language at the time, but that's what I was doing. And when I transitioned to teaching chemistry, I taught the way I had been taught chemistry, a very traditional--notes, practice problems, a couple of labs as confirmatory labs thrown in. And it wasn't enough and it wasn't fun.

Ariel Serkin: [05:03](#) I mean, it was fun. I loved it. I'm a chemistry teacher and I was always looking to improve myself. And then I found modeling. It was the first time a modeling class had been offered in Massachusetts. And I remember on day three I'm like, Oh, okay, this is it. I'm here. I bought in. I'm 100%. I'm here. And it changed everything from the way I teach it to the way I talk to my child. It's, what is the evidence before me says that "No, you did not actually complete your homework." And that's what I look for. I really say that to him on a regular basis. "Well you

told me you did this, but what is the evidence to support that?" And it sounds silly, but that's what I do. So the focus isn't on a right or wrong, but what conclusions can we draw?

Mark Royce: [05:52](#)

The Socratic approach to child rearing.

Ariel Serkin: [05:58](#)

But I also found the best people I have ever met. We've talked on the podcast, I've listened to all of them and so many people talk about community and it's true. I found the best friends that I talk to on a regular basis from across the country who help me be a better educator who can help me work through problems that I struggle with, can cheer me on on the really good days to push me to think about things harder and they pushed me to be a better person and help me consider issues that I might not have already thought about.

Mark Royce: [06:36](#)

That's wonderful. Tanea?

Tanea Hibler: [06:39](#)

I would say that I totally agree. One of the things that was hard for me when I started teaching was that I graduated from school, I don't know when, back in 2000, I think on my diploma, I might say 1999 1998 1999. I got my degree in biology, but I didn't start teaching until, I think it was 2006. I started teaching. And so there was this large gap. And when, when I went to school in biology, basically you go into a class, a teacher lectures, you write everything down, nobody cared if I actually understood everything it was like either you know it or you don't know it. And basically people were memorizing things and the students who could memorize everything the way the teacher wanted them to, those were the students who got A's. And then those were the students who basically could go off and, you know, whatever path.

Tanea Hibler: [07:36](#)

A lot of people wanted to go to medical school or they wanted to go work in a laboratory or for a pharmaceutical company, things like that. And I just felt like throughout high school I was discouraged to be in science. I felt like in college, even though I love science and I, I really liked engaging in the process of science, I felt like I was discouraged in college and my older sister, her graduating with a degree in biology was really one of the things that kept me going. And sometimes I would, I would call her up and ask her for help and she would actually try to like talk me through things and try to explain things to me differently and tell me to draw things out. And the teachers weren't really like that. So I knew I didn't want to be a teacher that was like the teachers that I had that I felt were not helping me to go where I wanted to go in my life, but I didn't know how to do that. Like I just, I didn't know how to do that. And so I,

when I got in the classroom, I knew I wanted to do hands on activities with the kids. I knew I wanted to do a lot of labs, but I didn't have a sense of how I was supposed to take all that and make it meaningful. And so modeling, it gave me a really concrete framework for how do I work with people and help them to think through a problem. How do I present them with evidence and then allow them to interpret that evidence. And, and it really even gave me the freedom to not worry about time.

Tanea Hibler: [09:09](#)

A lot of teachers are worried about getting through so many chapters and meeting the group of modelers that I met and working with them and reading different papers, research articles, going to conferences. It's really confirmed that it's not what's important is not how much material you get through, but it's the, it's the thought process. It's can you explain something in your own words? Can you solve a problem? Can you interpret the data? And I feel like I'm doing that with my students now and I feel like I'm seeing kids that are having success. And and I feel like I'm getting a lot of support from administrators and like Ariel said, I have people who don't work at my school who I have these relationships with and I can talk to them about the good days. I can talk to them about the bad days.

Tanea Hibler: [10:06](#)

We can share data with each other. We share pictures of the results -- this is what my whiteboards look like. Well, what did, what did your students draw or what kind of explanations did you get? Well, how did you deal with this lab or how did you deal with that lab or have you thought about changing this or changing that? As I have this whole community of people that I can talk to now we have webinars. We have a distance learning course that we're doing. I could teach workshops in the summer. I can go present at conferences. And so I'm growing as a teacher. I'm helping other teachers grow. I have people that I can talk to. It's just made my job enjoyable again.

Mark Royce: [10:48](#)

like Ariel said, the collaborative community is the thing that I hear a lot of people talking about and how important it is to each person's development. I want to jump into the idea of diversity, equity and inclusion. I was challenged when I read the article. Personally, I was challenged, cause I've never considered myself as dismissive in any way to any people, but yet, you know, seeing the perspective that you presented really made me rethink, maybe I need to spend a little more time thinking about it. So that's what I hope that in our dialogue today that we can kind of dig into that and hopefully we can all come out on the other side a little more aware and a little more, loving, I guess I would say. So Tanea, I have a little quote here. You said,

in that article you said, when I consider the importance of diversity and inclusion, I'm not engaging in an intellectual exercise that I can step into and then step out of, I'm engaging in the work of creating a safe and a welcome place for myself and others to exist. Yes. My question to that, that I'd love to hear you address is what did you mean when you said you were creating a safe place? What does that mean? What is a safe place look like?

Tanea Hibler: [12:17](#)

I don't know what it looks like. I know what it feels like and I know that I don't always feel it. And so if I don't always feel safe to be myself and say what I think or express my feelings or just be me and have my hair out in my big ponytail or Afro or whatever, then that means that there are kids that are at our schools who don't feel safe and they don't feel loved and they don't feel appreciated. And I have two black boys that I'm raising. My older son is 12 he's going to be 13 soon. And then my younger son just turned eight. And when they come home, the schools they go to are predominantly white. And sometimes they come home and I realize that they're not going to interact with any other students of color.

Tanea Hibler: [13:12](#)

They, um, they're going to have teachers who don't look like them. And if somebody is not invested in embracing them and loving them fully, if somebody is not really saying, I'm going to consider that, you know, that the history, not just what our traditional curriculum, but uh, everybody's story is part of the American story and they, they might be coming home and feeling less than what they should feel. They might feel less than instead of feeling loved and feeling embraced. And even like a small thing like doing a science project. My son came home, he said he had a science project. He had to talk about inventors. And I said, well, you're going to pick a black person to do your project on. And he said, well, black people didn't invent anything. I was like, well, who told you that? I was, like I said, and clearly nobody told them that black people didn't invent anything, but no one's telling him what black people have invented.

Tanea Hibler: [14:12](#)

And that's the problem. And, and then, uh, you know, like one of the middle schools in his district -- They said they didn't do black history month because none of the kids planned anything for black history month. So it wasn't like even something of importance to them. And it's those things that I find frustrating. And then I'm the only black woman who works at my school. I'm the only black female on staff at my school. I work at an all boys Jesuit high school and I have had, um, many challenging situations in my class with students or I've had challenging

situations with, uh, coworkers or I felt isolated at times. And so I feel like if, if I'm not doing this work, then that means everybody, like it's never going to change. And people don't like talking about race.

Tanea Hibler: [15:14](#) Some people actually, when we talk about diversity, sometimes people get upset even just talking about diversity and inclusion. 'Cause people feel like they're being attacked. If you say, we have to work on this, people think, Oh, well what are you saying? I don't care about my students or I'm not doing a good job. And some people don't want to even talk about diversity and inclusion sometimes. And when I got, I got kicked out of the Facebook group because I was trying to reach out to other black educators.

Mark Royce: [15:44](#) You share that story in the blog, right?

Tanea Hibler: [15:47](#) Yeah. Yeah. I have things like this happen to me where I go to spaces and I'm the only black person and I'm used to that. But I feel like I can be a leader in the science community and I feel like it's my responsibility to try to draw more people in to help the community to be more diverse. So if I go to a Facebook group and I'm reaching out to try to find other black educators, I don't expect to be attacked by my fellow, white educators on a site. And I felt attacked and I spoke up about feeling attacked and the moderator of the page blocked me and basically kicked me out of the group. And so I was just really upset about it because I think that if you are not a black person who is working towards equity and inclusion, you might not even know these types of things are happening. You just might be ignorant that people are experiencing these things and these are the types of things that make somebody want to quit and give up. So if I am facing things at my job that I deal with on an everyday basis and I'm facing things when I go to a conference and I'm dealing with things at my son's school and even dealing with little things like, you know, going to like home Depot or something like that.

Tanea Hibler: [17:14](#) And everywhere I go, I have these issues. It can chip away at your spirit. And so to let it not chip away at my spirit, I have made a point that I'm going to try to work on making a difference to the extent that I can. And I reached out to Ariel because she's a really good listener. And she has shown in many ways that she's a really caring person. And I just asked her if she would be able to support me and if she would be willing to write with me. Because I think that she is a really good example of someone who tries not just by like the words that they use, but by their actions. She, you can tell that equity, inclusion,

diversity is important to her. And so I reached out to her after that happened to me,

Mark Royce: [18:18](#) you know, I have a quote here from her and I really resonated with this and until the last three words, but, and you'll understand what I'm talking about, but she said, I remember being around people who said things such as, I don't see color. And thought that it was a remarkable way to see the world. I thought that it was the goal of people to get beyond color and that we were all a part of the same humanity. And I thought, you know, that's kinda how I've kind of viewed the world. And then she says, but I was wrong.

Ariel Serkin: [18:57](#) Yeah, I, uh, it took me a long time to come to that. I remember growing up and people saying, Oh, can you believe she's talking about this boy she's interested in. And she didn't even mention that he was black. Oh my God, that's so wonderful. She could see his soul and all of that. And I thought that was the way, and it was white privilege. Somebody's identity is important to them, that is who they are. It is their lived experience. And to deny that, to not see that means you're not seeing the person. And it took me a really long time to be able to come to that because it wasn't my same lived experience. I did not have the same experience, obviously, but I'm an observant Jew. And for many people, I am one of the first observant Jews who participates in secular society that they've really encountered. So when, for example, at leadership, they had events on Saturdays, we kind of arrange things because, well, I'm not taking notes, I'm not doing this, I'm not doing that because it's the Sabbath and I do things differently. One of the organizations I'm a part of has had almost every single meeting on a Saturday and I said, can we have a day or two that's different? I'm not saying all of them have to be on Sundays, but you're excluding me and I would like to be a part of this if you want me on your board, I can't be a part of this if you don't include me. I have experienced antisemitism and I know if I wanted to, I could hide the fact that I'm Jewish. I don't have to wear the star that I wear everyday. I don't have to observe the holidays, I don't have to keep kosher. But I do. And it's part of who I am. .

Ariel Serkin: [21:07](#) If I could hide who I am and I feel put upon at times that I feel these micro aggressions, how much more so can people who cannot, even if they wanted to, hide their identity, not that they should, because who we are should be celebrated as just part of who we are. And those experiences are important.

Tanea Hibler: [21:34](#) I like to also add like it's, and when you say I do not see color, to me we cannot say that because the whole history of America, it

was founded based on like what color you were. So if you were, if you were a black person, you were enslaved here and that meant you had no rights and it was all about color and that created a whole history of like how our country works and what policies were in place and where people could move and where people were afraid to move to and what jobs people could get. And even to this day, it still affects people. Um, I mean, I could tell you story after story after story about people being limited because, you know, they had their hair was the wrong way or they were too dark.

Tanea Hibler:

[22:31](#)

Like, my husband has had people tell him, well, you're too dark. Like, you know, and it's not like we're rich. We don't have lawyers to fight every problem that we face, in society. So we just, a lot of people just keep chugging forward. They do what they can do. But if you talk to people, and I think in any communities of color, you're going to find that people face challenges and it's because of the history of this country. And so we have to acknowledge that first and then we have to talk about it. And then I think teachers, and Ariel would agree with me on this one, teachers have a responsibility to educate and to serve their entire community, not who they want to serve. And especially, public school educators. But I work in a private school and I believe that my private school has just as much responsibility to make sure that kids of color who come to school here, that they are going to have a safe place, that they're going to have an equitable experience just like any other kid.

Tanea Hibler:

[23:39](#)

Um, and so if, if teachers cannot acknowledge the challenges in this country and they can not acknowledge differences that exist culturally, amongst people and they're not gonna celebrate people for who they are and they're not going to think about how their curriculum impacts the students in their classroom or even impacts the teachers at their schools. Then I think maybe some people need to reconsider why they're in education. I feel very, very strongly about that. I believe there's like a very high percentage of, maybe 50% of the kids in public schools are going to be students of color. But most of the teachers in public schools are not teachers of color. And a lot of districts are losing teachers of color. And so this is something we need to acknowledge and we need to come up with solutions to the problems that exist because when we raise up one group, we raise up everybody. We make the whole country better. And I know sometimes it's little small changes, just things that people haven't thought of before that can make a huge difference. And so we have to have these tough conversations. We have to be willing to be uncomfortable and

we have to push to change or nothing is going to change. And I want, I want to think and hope, I don't think hope is enough, but I want to think and I want to hope that, you know, maybe in a hundred or 200 years, my great, great, great grandkids will have a different experience than I had or my parents had or my,

Ariel Serkin: [25:24](#) yeah. And as a white educator, I need to make sure that not all the pressure is being put on the teachers of color, it is not fair for all the teachers of color to have all the responsibility for trying to upend the system.

Ariel Serkin: [25:43](#) The pressure that teachers of color face is much different than the [pressure] that I face. Tanea, I can't imagine what it's like for you and your students. Your two black boys that you say you teach. They must look at you really differently. You're their support system and as much as you value being that I'm sure it gets really tiring because you have your own emotional weight that you carry every day and then you have to take it for your students. And we hear about teachers in urban districts where they're still very few teachers of color and the kids go to them because they understand because they can have that conversation.

Mark Royce: [26:25](#) That's why it's so important that people like Tanea are involved. I was really interested in the quote that Tanea, the quote you gave from Robin DiAngelo and um, this to our audience is a person who wrote a book called White Fragility. And she said, "If I'm not aware of the barriers you face then I won't see them, much less be motivated to remove them, nor will I be motivated to remove the barriers if they provide an advantage to which I feel entitled." It's an incredible quote.

Mark Royce: [27:12](#) So how, how do we work together to help eliminate these barriers and to open our eyes to see each other? You know?

Tanea Hibler: [27:22](#) Well, my school had a, we had an assembly where we talked about microaggressions and a variety of students. It was a student run assembly actually. Uh, so students did all the speaking, they did all the presenting and they, a group of students shared narratives with the entire student body about experiencing microaggressions on campus. And some of those microaggressions were related to the students, um, their race or how they identify. Um, there was actually a lot of pushback from the majority or a lot of the kids in the student body. They said, well, I felt attacked and during that assembly You're calling me racist. The word racist was never used during the assembly. People just talk about their personal experiences, you know,

that they have in class or things that they hear or maybe things that they deal with, in their neighborhood.

Tanea Hibler:

[28:20](#)

It was, you know, and so I was, I wasn't shocked that we got that response, but we did create a couple of spaces on campus where kids could like come together and they basically vent and got talk about their feelings and then listen to someone else respond to their feelings. And then we did read the book *White Fragility* and we did have a book club meeting about that. And there were, there were, there was a small group that came together and talked about the book. But the fact that we have a lot of young white men who felt threatened by students of color expressing their personal stories is an indication that that's just the place to start. And if you don't, if you're not talking about these types of subjects and you're not bringing up these discussions, not just outside of the classroom and at assemblies and creating spaces and book clubs, you have to be doing the work in the class.

Tanea Hibler:

[29:22](#)

So if kids, at the first time they hear about white fragility or the first time they're hearing about people of color's experiences or the first time they're interacting with a person of color, if that kid's 16 years old, that's a little bit late, you know, so if we had more teachers of color in the elementary schools and we had conversations going on and we taught kids how to talk about their experiences and how to listen and empathize at a younger age, I think maybe people would be more able to do that at an older age. Uh, but there, I, I do believe that white fragility is a big issue, at least at my school because of my school is majority white. Um, and I think that having the conversations is a great start, but we need the science teachers to be talking about race and biology, looking at examining is race biological; we need the history teachers to be talking about our history in a way that really embraces different cultures that have all contributed to American society.

Tanea Hibler:

[30:35](#)

We need the English teachers to be reading novels from different types of authors, women, men, people, immigrants, people from, you know, have different backgrounds. We need it to be at every level. Everyone's chipping away and getting comfortable, being uncomfortable. And until we're willing to do that, I don't think anything's going to change. I would say like every other month I think about quitting. Cause sometimes I feel so defeated. I'm constantly, well, a lot of my students tell me I'm the first black teacher they ever had. I work in a high school. So that's a little bit sad to hear that sometimes. And I think, well maybe they have these preconceived notions about what a black woman is and I can't represent all black people for

them. But yet, I'm probably the only black person that some of these kids are ever going to interact with.

Tanea Hibler: [31:40](#) We also need to talk about how America is segregated. Our communities are segregated and that that contributes to the problems. Housing, you know, the whole red lining thing that happened a long time ago. It's still basically defines our communities. And so it's really like frustrating for me. So I have, I have kids who tell me, um, I've had kids use microaggressions with me in my classroom. I've had challenges having conversations with colleagues and trying to talk about how do we implement things in our classroom. So this is why the modeling community is so important to me. So I go outside of my school to find people who are comfortable having these conversations and they're willing to say, let's talk about how we could do this. How could we talk about race and biology? You know, let's go present and talk about, you know, how you can use modeling instruction to really be inclusive within your classroom. So it's frustrating and yeah, every day I have these challenges that I'm dealing with and I have low points, but I have high points sometimes too. And I do feel like I'm building some great relationships with students at my school and I also feel like I create a safe space for a lot of kids in my classroom.

Mark Royce: [33:03](#) When you were talking about how different classes in the school could engage in helping to create more inclusive approaches, you did not mention chemistry or physics. You know, a bunch of our listeners are chemistry and physics teachers and you got one sitting there with you, with Ariel and I am really...

Tanea Hibler: [33:31](#) If I hear one more teacher say to me well, physics is physics. We don't need to do that in physics. That is, can I say BS? No, you have to think about it. Like even if you want to talk about like inventions or you want to talk about different scientists or you want to bring people into your classroom who look differently or maybe even just trying to ask the kids, Hey, what do you guys want to do? What do you care about? What would you be interested in? You know, it's sometimes it's the small things that can make someone feel welcome. Look at your syllabus. Look at the language you're using in your syllabus. Can you change some of the language that you're using? Is it intimidating certain groups of students? Do you have policies that benefit some students and they hurt other students?

Tanea Hibler: [34:22](#) If you're all about, well, we've done it this way and we're always going to do it this way, well then it's going to be really hard to have a conversation with you. You have to be open and be

willing to listen and try something new and really see, can it make a difference for these kids that I have? And if you want to make a difference, I think you'll be willing to do something. Whether you're a physics teacher or chemistry teacher, it doesn't matter what you teach, it doesn't even matter the style that you teach, it matters that you, the intent behind what you do, that's what matters. So if you have the right intent intentions and you're willing to go pick up a book and read a book, maybe read 10 books and you're willing to go to some conferences and meet some different people and talk to different people, and talk about what were the challenges that you had.

- Tanea Hibler: [35:21](#) You know, you're a chemist. What challenges did you have becoming a chemist? There's a podcast that's called, is it story to story? Oh, there's this great podcast where you can share with your students about people's path to getting to become a physicist or a chemist or whatever. You can share that type of stuff with your students to show, Hey, we all don't have this straight and narrow path that we walk to end up here. And there are people who've had a really, really tough time, but they found success and I'm going to share that story with you. I'm going to show you that I care about that.
- Mark Royce: [35:58](#) And that you care about the student. My wife always says, you know, your kids aren't going to care. Your students aren't going to care until they know that you care about them. And this, I think it's interesting that in the classroom, if you have a really diverse ethnic collection of students, you make sure you don't unintentionally create exclusion by only letting certain groups of kids talk who might be more inclined to talk. Sometimes it's that quiet one that has a brilliant insight, you know? So anyway, I want to ask you, Ariel, how, how do you work in bringing inclusivity into your classroom?
- Ariel Serkin: [36:39](#) It's a really important topic and I'm going to answer that. There's something I think it's really important to add is that when Tanea was talking about her students and their responses to the conversation about microaggressions, students automatically went to, I'm not racist, or that was so racist. We need to detach a judgment value from the word racist. Somebody who exhibits racist beliefs doesn't make them a bad person. You have this feeling you perpetuate a system. So now let's work to address it. If we automatically think racism is bad, nobody wants to consider themselves bad, so they're not going to be racist. So that's not the issue. So I'm not a bad person, so therefore I'm not racist, so therefore I don't have to deal with this. And that has to be addressed. So ways that I work for

inclusivity in the classroom, there are a variety of them and I'm still working on it.

Ariel Serkin:

[37:41](#)

We can do, and I've done things such as scientist of the week. It's not even, it's something you have to do as a presentation. You could just have a poster up such as the week of the month and highlight a scientist who is a chemist. If you're like me, chemistry teacher or a physicist, somebody who has used chemistry or physics or biology or other sciences in their everyday life, and I would highlight people of color and women and people from other countries as well. So it's not just Europeans. You have people from all over and their accomplishments and their achievements need to be addressed. And so sometimes as simple as that because that representation in the classroom matters. So if you just have posters of all the famous scientists and they're all dead white men, what image are you showing all your students?

Ariel Serkin:

[38:36](#)

Sometimes it's little things. If you are writing problems and you put people's names in them, if you're only using John and David and Sarah or Jennifer, people have an idea of who you're talking about, they often automatically go to a white person, include different ethnicities in your names. I also encourage people to consider using they as a singular pronoun for your non-binary students. It's a really easy little fix and it's just a way for representation in the classroom. Other ways I've worked on it and things that I encourage people to do is consider how you group your students. When I first started teaching and I would try and group my students, I would intentionally separate the few students of color, because I didn't want them to feel I was singling them out, but without realizing it, I was singling them out. So have conversations with your students, especially if there's only a couple of students, what makes them the most comfortable?

Ariel Serkin:

[39:48](#)

There have been enough research to show that even within groupings that students of color are not given the opportunity to access lab equipment to participate or assumptions are made that they did not do the homework. There's no reason for it, but those are the assumptions from other students. So ways to address this in the classroom are you can intentionally assign roles to make sure that everybody has to do something to participate. So they're not being dominated, whether it's students of color, whether it's your female identifying students, your quieter students. I assign roles on a daily basis, whether it's you're white boarding that problem or this one is presenting. And I give students time to talk and have those conversations so they're not doing it individually. I remove students' names from

their whiteboards. That way the focus is on the data and not on the person. Because sometimes people will be more likely to critique a person of color. They'll be more likely to critique a female student or they will be less likely to critique someone who they think knows the answer, whether they do or not. It's that impression. So by removing the names, the focus is on the data.

Ariel Serkin: [41:09](#) And that has actually been some really positive changes that I've seen and not letting things slide. It's really easy as a teacher to pretend you don't hear things because you don't want to engage. You can't let that happen. And I'm not saying you have to go after a student, but talk to them. If we're talking primarily about high school students, I know we have some middle school teachers here who listen as well.

Ariel Serkin: [41:40](#) We talk to the student, have them consider what they said and help them see why it's a problem. I have students who have used a derogatory term to describe people of Romani descent. Like Edison, that's a racial slur and people don't know, they're corrected, and they, they don't do it again. Some people I've had to correct multiple times, but I don't let it go.

Ariel Serkin: [42:12](#) and sometimes they don't do it intentionally. They do it out of ignorance. In my school in Massachusetts, I have students who wear Confederate flag shirts and Confederate flag belt buckles. I have conversations about that is not going to be okay in my classroom and what messages that says, and some people say it's freedom of speech. I put my students being able to feel safe in the classroom above wearing a tee shirt.

Ariel Serkin: [42:47](#) I also at my school, I'm one of the teachers who has helped form a multicultural club and it's small, there's not so many students of color at my school, but the kids who have come, we've had some great conversations. We've had potlucks where we talk about different foods from different cultures and that's been actually really fun and it's become a safe place for those students to be able to come and be themselves in a place where they don't always have that opportunity to do so. And I let my name get out there that who I am and what is acceptable in my classroom and what is not acceptable in my classroom and the kids know and they adjust their behaviors and I hope that they will take the lessons and be able to move it forward as they go on in life.

Mark Royce: [43:43](#) So I remember you mentioning that you had a even begun to look at how the curriculum that is used can bring in biases. Maybe, perhaps unintentionally. You want to speak to that?

- Tanea Hibler: [44:02](#) I'll let, Ariel go ahead and answer that. But I, it's just, it's really challenging. Um, the curriculum, there are biases everywhere, everywhere we go. But we have to consider who were the people who made most of the laws, who wrote the constitution, who has been developing policy in this country. And so it's always from certain perspective. And usually that's a white male perspective. And me as the only black woman at my school, when I go somewhere, I always know that I'm going to have 90% chance I go into a meeting, I'm going to be coming with a different perspective. And that's something that I always have to brace myself to deal with.
- Mark Royce: [44:59](#) That's a heavy load to carry
- Ariel Serkin: [45:01](#) When it comes to the curriculum. And this just really plays off of what Tanea was saying. When we look at the frameworks or the learning standards, people think when it comes to science and, and likely, I think more so in the physical sciences than in the biological sciences because people say, Oh, well, chemistry is chemistry and physics is physics. Right? Race isn't involved. These are just the scientific principles with biology that you might get a little more of race when you're talking about genetics. People tend to feel that's at least a place they can talk about it, but people pretend it doesn't exist. So sometimes it's as simple as, and none of this is simple, whose names are we giving to places and people? Why are we referencing all these years white male, European scientists? Are you really going to tell me that not a single woman, not a single person of color, not a single person in another part of the world was doing experiments?
- Ariel Serkin: [46:13](#) And people believe that. People believe that. So it is important to work that in. If you don't know about underrepresentation curriculum, there are ways of looking at under-representation, specifically in sciences. A step up for women is a step up. Excuse me. It's no longer step up for women. Step up program is also about looking at different ways of including people specifically in physics and this is the type of outreach that we are currently working on and I know I'm not doing a good enough job. We look at math and people say, well math is math. Math is pure, but math is for everyone. And if we want to talk physics and we want to talk chemistry, this idea that of the gatekeeping that we do and we keep our students of color in particular from taking these higher level science classes because somewhere earlier in their education, they did not get a certain math class or they've been tracked a certain way, they don't have access to it. So these are the type of policies and curriculum that prevent students from being able to access and move on when we say,

well, if you don't have algebra two by this point, that means you can't take advanced physics. And if you don't have physics, you're not going to get into this particular college program. And when people say, well, Hey, let's not offer our students algebra two it's too hard for them, we are closing opportunities.

Tanea Hibler:

[47:59](#)

Yeah. And if we have, if you look at like the graduation rate for black people or Hispanic people or you look at the rate of people, um, like how many astrophysicists are you going to see like that are people of color or if you look at the, if you look at PhD programs, like how many students of color are getting into particular PhD programs in chemistry or biology, but just the numbers on their own let us know that we're doing something wrong.

Tanea Hibler:

[48:31](#)

Like we have to change whatever we're doing. It's not working for everybody. So we might want to change what we're doing and more likely than not, it's not. Changes are not going to hurt anybody. They're just going to bring more people in. And if as a country we don't have enough people and there's many, many jobs that we're not filling. We can't fill like we can't find anybody for these jobs like these tech jobs and everything. We need to bring more people in. We need to start making sure that we're educating the students here and that we're giving them these opportunities. Because we need it. We need people to do these jobs anyways. For me in particular, I am focusing on race and biology. So I start off the year with classification and characteristics of life and I move into populations and ecology.

Tanea Hibler:

[49:29](#)

And then my third unit is evolution. So at the end of evolution, we talk about the evolution of skin color in humans and then we talk about whether or not race is, biological. And then second semester I'm doing my growth of cell growth and division unit. And after we finished meiosis, I ask the students again, now that they understand how sex cells and gametes are formed, and how you form a zygote, then I ask them again, well, now with a little bit more background, can you tell me, is race biological? Like what does it mean to be a black person and what does it mean to be a white person? Try to answer that question with the information that you've been given. And then we'll do our genetics unit and I'll come back to it again. What I found is that students can be told that race is a social construct, but if they've grown up in a society where race defines everything and race is important, not because someone's saying it's important just because of how they see it affects someone's lives, that they have a really hard time letting go of the idea that race and biology, they really think that race and biology go hand in hand.

- Tanea Hibler: [50:50](#) And we have all kinds of great conversations. The kids ask me great questions and the best part is I tell them, I'm not telling you what to think. I'm asking you to think about why you think, what you think. And so they're forced to kind of wrestle with their thought process. And ultimately the goal is, that I'm not producing students that are going to hold on to racist ideas and concepts and then be a part of a racist system that is going to hold groups of people back. And so, I think if all teachers were working towards that end, we could push against racism a lot better than what we're doing now. We read this book at my school called Everyday Anti-racism has lots of ideas and lessons. It's like essays, so you don't have to read it all at once. That book was great. How to be Anti-Racist Ibram Kendi's book. Fantastic. Yeah, and I read White Fragility. I'm reading a lot of books and um, I go on Twitter a lot and talk to different people too. It's a great place to vent, by the way,
- Mark Royce: [52:02](#) if you send me a reading list, we'll post it on the website so that when people go to the website, they can see, they can get a transcript of our dialogue and they can also get other resources that either of you can share with me and I will post them up there for people to get ahold of.
- Ariel Serkin: [52:20](#) Tanea, have you read Grading for Equity yet?
- Tanea Hibler: [52:23](#) You know what? I have not read that one. I already know. I have thought about that deeply and just thinking about like how we grade, I'm like, Hmm. I probably am doing a disservice to a lot of my students and I kind of feel like my whole school needs to have that conversation. It's a deep conversation to have. We're at least talking about the schedule now. We're talking about changing our schedule and making that a little bit better.
- Ariel Serkin: [52:54](#) I agree with Tanea that I've also found Twitter has been a really useful place for me to engage with other educators both at the secondary level and at the college level who are having these serious conversations and I know people on this podcast have talked about Twitter before. It's been fantastic for me as a place for professional growth and development and to really work through issues, whether it's pedagogy or antiracism, equity for students with abilities in the classroom, antisemitism. It's been a really useful place to do that and they're really very many passionate educators out there who are happy to share and work through issues together. We're not saying this is easy, we're just saying it has to be done and it's our responsibility as educators to do this. We are doing all of our students a disservice, not just our students of color. We're doing our white students a huge disservice if we don't address it with them. If

we don't change how they are talking to each other and how they are talking with people and how they can help dismantle a racist system, we are failing them just as much as we are failing our students of color. And I've also had coworkers who've pushed back against, uh, anti racism and not because they are bad people, but they might not see it. They believe in a meritocracy without realizing that a meritocracy is really just perpetuating a system.

Mark Royce:

[54:38](#)

And what a shame to have a system that just by default in the history of segregation and all this that dismisses these brilliant minds that could be going into the STEM system. It could be growing and becoming thought leaders. It could be growing and providing the kinds of important work that's needing to be done in our world with its deep dependence on technology and the sciences. And there's so much there that we're losing resources. And, I want to, just commend You two for your boldness and for stepping up. And, and you know, we have a platform here with the modeling community and these are influencers, the modelers I find her just amazing people and, and mostly have this great intent to be the best teachers they could be for their students. And this is a part of learning that.

Tanea Hibler:

[55:42](#)

I totally agree with you. I'm gonna put out a little requests all the modelers that are out there. So I went to the AMTA conference, the national conference, last year and I'm going to go again this year and I'm leading a workshop this year. So I love my modeling community, but I'm going to ask that if you know a teacher of color, you know a person of color, and they're in science education or they're a middle school teacher who teaches math and science, try to bring them into our community because we need our community to be more diverse so we can go back and start reaching into communities that we are not yet touching. And I think that it will help us to grow as a community. It will help us to become sustainable and we can be changing the lives of a lot of young people. So try to stretch beyond those people that you normally talk to and talk to someone that you haven't talked to before and maybe actually go talk to someone that you don't know at all or go to a school where you don't know anybody and try to bring them in because we need to start with us. We really can't encourage people to work at something and to change if we're not willing as a community to do those things ourselves.

Ariel Serkin:

[57:10](#)

And I'm going to add one more thing. We've had conversations within the modeling community and some people say, Oh, because we're modelers, we're automatically equitable. Don't get lulled into thinking because we as modelers promote

student discourse that it necessarily makes it equitable for all students. We have to be intentional about creating a safe, inclusive, and equitable place for all of our students and all of our learners and all of our teachers.

- Mark Royce: [57:42](#) That's awesome. So Hey listen, I'm going to ask you guys one final question and have you each share unrelated to the inclusion discussion, what's your best modeling instruction tip, advice, that you would give right now and then we'll close with that.
- Tanea Hibler: [58:01](#) I would say you have to be willing to let go of the preconceived ideas that you have in your head about what it means to be a teacher and if you give yourself the freedom to let go and you're willing to try something new in your classroom, you probably are going to fall in love with modeling instruction and your students, if they haven't fallen in love with you already, they're probably gonna fall in love with you too.
- Ariel Serkin: [58:34](#) Oh, I love that. I don't know if I can follow up nearly as well, but reach out and ask for help. The modeling community is there to help you, whether it's working through a concept that you thought you understood and then you go to teach it and realize you don't have as deep an understanding as you initially thought. Or if you have a really great way that you did something in the classroom, you want to share it, reach out to other people, it makes your teaching better, it makes other teachings better and all students will benefit.
- Mark Royce: [59:09](#) Awesome. Tanea, Ariel, thank you so much for taking the time out of your busy schedules. Thanks for having so, um, send me any, um, resources you want to share with the listeners and, and uh, we'll post it on the site. So thanks again you guys. It's been great talking to you. Keep up the good work. Thank you so much.