Speaker 1: You're listening to Further Together, the ORAU podcast. Join your hosts Michael and Jenna as they discuss all things ORAU through interviews with our experts who provide innovative, scientific, and technical solutions for our customers. They'll talk about ORAU's storied history, how we're impacting an ever changing world, and our commitment to our community. Welcome to Further Together, the ORAU podcast.

Michael: Well good morning and welcome to another episode of Further Together, the ORAU podcast. Good morning Jenna. How are you?

Jenna: Good morning. I'm doing well. How are you?

Michael: Very well, thank you. I'm really excited today because we have two guests from Nevada.

Jenna: Yeah.

Michael: On the phone.

Jenna: Yeah.

Michael: On the phone. We're doing another long distance podcast.

Jenna: I know, I know, it's exciting. We're branching out.

Michael: So we have Janie Kimbell and Melissa. I'm sorry I forgot your last name, from Elko, Nevada on the phone to talk about the Joint Science and Technology Institutes and how participation in that program that overrides managers-

Jenna: Mm-hmm (affirmative).

Michael: Has changed their world basically.

Jenna: Yeah.

Michael: So good morning ladies.

Janie Kimbell: Good morning.

Melissa Jones: Good morning.

Michael: How are y'all?

Janie Kimbell: Awake!

Michael: Awake, yeah. [crosstalk 00:01:30] It's 8:30 Eastern time and it's 5:30.

Janie Kimbell: Yeah.

Jenna: We appreciate it.

Janie Kimbell: So-

Melissa Jones: No, this is fun.

Michael: Really early to have this conversation and I greatly appreciate that. So Janie and Melissa, before we sort of jump into all things JSTI tell us a little bit about who you are and what you do.

Janie Kimbell: Okay. This is Janie. This is Janie. So I am a high school math teacher and Melissa and I both work at a rural school and I teach six different classes a day, from Algebra I all the way through Pre-Calculus and on the side I do STEM Club and I work with everything that we're trying to push our students forward with, with them and helping them to understand what's there. I live 40 minutes from school, so I commute and I have a lot of fun.

Michael: Excellent. Melissa, tell us a little bit about you.

Melissa Jones: This is Melissa Jones. I work at the same school as Janie and I teach six to eight different science classes depending on the year. And I also help Janie co-advise the STEM Club and I'm not sure what else. We're really busy.

Janie Kimbell: We're very busy.

Jenna: Yeah, it sounds like it. Tell us a little bit about your STEM Club. What does that mean? What do the students get to do? Is it held after school? Just kind of a brief overview of that.

Janie Kimbell: Melissa, go ahead.

Melissa Jones: All right. Janie and I started the STEM Club and it's done as an extracurricular activity. And so the students would, depending on the activity, sometimes they come in on their own time to help build the robot. We have meetings during a remediation block of our regular school day, once a week. And so students that are maintaining their grades and doing well in school have time to do extension. And so STEM Club is one of those extension activities that are offered during that time.

Janie Kimbell: Melissa usually works, because we have, because we are a combined school, we work with the secondary so we have seventh through 12th grade students. Melissa typically takes the high school students and I take the junior high students because it's hard. The junior high students, we brought on another robotic team this year that we're going to be implementing, but we find that it's better to help grow the junior high students, grow our program from the ground up. So we usually do two different sections there and it works out really well.

Jenna: Cool.

Michael: Awesome. Well it sounds like you all are really busy.

Janie Kimbell: Yes.

Michael: So let's talk about the Joint Science and Technology Institute and Janie, I know that you attended the Aberdeen version. So we have two versions of this program. We have one in Aberdeen that's been up and running for a number of years. And then this year we launched a program in Albuquerque, New Mexico.

Janie Kimbell: Yes.

Michael: You attended as a participating teacher five or six years from ago, was that right?

Janie Kimbell: Yeah, in 2015. I attended in 2015. We were made aware of it. Melissa and I had really... We owe a lot of our students, they go into what's common there in the area. We have gold mines, and Melissa and I just kept thinking, man, we've got to get these kids something else. We've got to give them some other opportunities and stuff, oh well let's start looking.

 Well, JSTI came up and so I applied as a participating teacher in 2015 and I was able to go and I came back and I said, look, look, we got it. We just wanted all of our students to be able to attend something like that, but we knew they wouldn't be able to. So from there it just grew. I mean, from there it just grew. So yes. And so every year since then I've been able to go back as a resident teacher to the different each year in Aberdeen and then yes, this year it was awesome to be in Albuquerque to see how that was different and the same as Aberdeen.

Michael: Right. So let's talk a little bit about what JSTI is. It's a residential... essentially it's a residential program for two weeks, right? Where, in Aberdeen anyway, both teachers and students spend their time working on research projects with researchers in and around the Aberdeen area. Talk a little bit about kind of the specifics of the program, if you don't mind.

Janie Kimbell: Well, so it's an application process. Students are, like you said, fully funded. Their days are jam packed from the minute they get up to the minute they go to bed and they don't want to go to bed. What they do is they're paired with scientists and teachers who work with them learning 3D printing. This year there was a robotics team. There were several biology science teams that looked at the water quality of the Chesapeake Bay. And so the students are fully immersed working with scientists and professionals in STEM fields just to give them that experience.

 And then in the evening we have other activities for them so that they can see, Hey this is all around us. They bond together as a group. Then at the end of the two weeks they go through and they make a presentation to show just exactly what they learned, and the teachers as well. We had one of our teachers attend this year and at the end I asked them, I said, Hey, do you now understand why I get so excited every time I come back to JSTI? And he was like, Oh my gosh, yes. He says he couldn't wait to come back to school to teach and work with the students.

Jenna: So what do you-

Janie Kimbell: [crosstalk 00:08:36].

Jenna: Sorry, what do you think the biggest benefit to teachers is, participating in this program?

Janie Kimbell: I always thought that the teachers, it was really important to have teachers come back because students, yes, we're affecting their lives but when you bring a teacher back and fire that teacher up about STEM and what's available and what's out there, they go back and each year they make that better and better in their classes and they are able to affect more and more students than just the students participate. Does that make sense?

Jenna: Mm-hmm (affirmative).

Michael: Mm-hmm (affirmative).

Janie Kimbell: I just see what it has done in our school and with Melissa and I and where we started and where we have come to. This last year we were designated as a governor's STEM school. So that's how far within the state. So the state knows who we are and I think it has been... I really believe at the initial starting Melissa and I were fired up, but then JSTI pushed us over the edge, I guess.

Michael: Well, and when we talked about this in the summer in New Mexico earlier this year, I mean, Janie, you basically said that JSTI has changed your teaching, your school. You just mentioned that the state knows who you are and your school, you're a rural school in kind of the middle of rural Nevada. You're not a Las Vegas school, you're not a big city school.

Janie Kimbell: No.

Michael: But you have the amazing STEM programs happening at your school. And like you said, the state knows who you are. How did all of that come to be after your JSTI experiences?

Janie Kimbell: It's been a lot of teamwork. Melissa and I have worked closely together and we both have different strengths I believe, don't you think Melissa?

Melissa Jones: I definitely- [crosstalk 00:10:52]

Janie Kimbell: We both bring, we both bring something to the table and we, in the very beginning, we didn't want to grow too fast. So we've added something every year. I think we started out with doing surveys, what do these kids want to do? What are they interested in? We wanted to know what their lofty dreams were. And so we helped them to understand, Hey, they're attainable, which you got to work, it's not going to be handed to ya. So I think we've instilled a work ethic in the students. I don't know. Melissa, I always think of Dalton when he was in junior high and incredibly smart kid that then all of a sudden he just bloomed. He's like, Oh my gosh, and now he's looking into getting the Start for the Smart scholarship. So, I don't know, it's really changed where we've gone and the culture of our school and our community.

Michael: That's really amazing. When we talked earlier this year, you talked about, is it the STEM night events? STEM fair event that you all do that you have these big time sponsors and supporters of major corporations in the state and the region really who come out and showcase what they do for your students.

Janie Kimbell: Yeah, we started this... every school has a science fair. Well our state changed into a STEM fair for the district and everything. So we decided, well, let's do a STEM Fest. Let's bring all these professionals who are so excited. We've worked with partnering with our local industry to help them bring them into the classroom as mentors. They've come into the classroom as guest speakers. And so we thought, well let's just have a showcase night where all of the corporations and individuals come into our school and they set up and they just show what they do, how they use STEM. And then we open it up. Our principal cooks, hotdogs out on the grill. We feed everybody and they walk in and they're able to go around and watch and see What these different companies do.

 I think for the first year, the second year... The first year nobody really knew what to expect. So they came in, these companies came in and they brought, like NDOT. I think of NDOT, our department of transportation for the state. They brought in their signs. Those things are huge. They brought in the painting and how they use different things of asphalt. Well, then at the end I heard them say, Oh yeah, we already know what we're doing next year. Well this last year they brought a roving robot that goes in the culverts and checks things out in the culvert.

 So a lot of interactive things. One of the mines brought... The kids had to do a simulation on a computer and then they put on goggles, virtual reality goggles, and they basically went underground in the mine with those goggles. We had a dome that was a 3D movie. The kids could go in, they laid down and they watched a 3D movie on the dome. You know, like traveling through space or traveling through the veins in your body to see. So that was incredible. That was our showcase piece.

 We've done this to bring the community together so the parents can see what they're learning, and what we're trying to do with their students in classroom is really relevant because here's all these companies, local businesses that, Hey, this is why we need your kid to do this and that. And so it's a great night. This last year we had... it's always in February and it just kept snowing and the people just kept coming. I didn't know where they were all coming from, but they just kept coming in. It was great. It was just an awesome time.

Michael: That's wonderful. It sounds like things are really, really going very well in your school. Anything that we've not talked about with JSTI or your STEM programs that either of you want to talk about?

Janie Kimbell: Melissa, let's tell him about Bob.

Melissa Jones: Okay. It was, I don't know, probably about this time last year Janie and I saw through Tesla and the state of Nevada, they had partnered together to offer a grant programs to start a first tech challenge robotics team. And Jamie and I looked at it, we talked about it a little bit and we were talking about expanding our focus and so she was like, we'll put in for it and we'll see what happens.

 And Jamie and I are really great about working together and putting in for lots of different opportunities. And so real quickly, probably five minutes or less, I was able to fill out this application, this is who we are, this is how we plan to use it and within 24 hours we had a response back saying, Hey Tesla wants to sponsor you to start a high school robotics team.

Jenna: That's amazing.

Michael: [crosstalk 00:00:16:45].

Melissa Jones: And we were just blown away, right? Cause within 24 hours we went from, well we're going to put into this to, we now have a high school robotics team and the students just absolutely loved it last year. It was our rookie season. We started a good two and a half months later than all the other teams in our state. But our students, they buckled down. We had a bot ready to go by the very first meet that was offered and they set it on the mat, autonomous programming goes off. He goes over, pushes the mineral into the depot like he's supposed to, and the smile on those kids' face was just, it was surreal almost. The whole experience, our very first meet.

 And so from that point we just continued to work and add to the robot and kind of make his design more complex and better to meet the challenge. And by the time we hit the state championships, we were a real contender on the mat. And I think just the students seeing that even though they come from this very small school, they can compete with very large schools and the students in the those schools on this academic critical thinking robotics level.

Michael: That's amazing. I think what I love about that story but just how you've both talked about JSTI and how it's changed your school and having the STEM Club, you don't have to be a big city school to have an impact on-

Melissa Jones: No.

Michael: Their students and their love for and getting them excited about pursuing STEM and being interested in STEM programs and wanting to become scientists and engineers and all of that. So I applaud you both for latching on and seeing where all of this takes you cause it's taken you in some really amazing directions.

Jenna: And we know it's a lot of hard work. This doesn't just come out of a couple-

Michael: It's not magic.

Jenna: Yeah, a couple of hours of submitting applications, so we thank you for that too.

Janie Kimbell: Thank you. Well, we want to make sure you follow us on Twitter. Our Bob Squad has a Twitter. It's @F-1-5-7-3-9.

Michael: Awesome.

Jenna: Cool.

Michael: Follow on Twitter and see what's happening. [crosstalk 00:19:18] Thank you.

Melissa Jones: Thank you.

Speaker 1: Thank you for listening to further together the ORAU podcast. To learn more about any of the topics discussed by our experts, visit www.orau.org. You can also find us on Facebook, Twitter, and LinkedIn at ORAU and on Instagram at ORAU Together.