ABE Teacher Roundtable transcript

January 19, 2023 – LabXChange

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Thank you all for joining us

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Thank you, Sarah, as you all know, we're going to be recording this.

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I believe we have captions enabled at the bottom, so if English is not your first link, you are welcome to use the captions to help you follow along with us.

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We're so happy to have you all here welcome and thank you all for coming to our first installment of 2,023 of the Mgen biotech experience teacher.

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Roundtable series, I'm Jessica Juliuson.

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I'm the director of community and strategy for the Abe Program office, and as always, it's an absolute pleasure for me to be able to host this Round Table today for those of you who are new to this series.

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These roundtables are designed for our incredible Abe teacher Community.

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From around the world. And it's a chance for them to hear and learn from experts and from each other, from other teachers, about topics of specific interest, to science and biotech teachers.

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So we hope you find this series valuable. Please feel free to tag us in social media.

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If you want to share your thoughts, you can tag us with at Abe Prague office, and I think, thank you, Sarah, for pasting that in the chat, so you can find it there.

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We also invite you all to say Hello, introduce yourselves and say where you're from in the chat as we proceed.

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This round Table is going to be recorded and posted on our website.

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And if you have registered, you will also receive a transcript of the discussion and a copy of any materials that we share today we will have some time at the end of this hour for audience questions.

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And so at any time, if you have a question, you can save it for the end, or you can just type it in the chat and we'll keep our eyes out and make sure we're collecting all of your questions as we go and I do want to begin by first sharing the news that unfortunately one of our

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round table panelists, Deb O'reilly, of Ab.

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E, Massachusetts did have an unexpected emergency come up, and she's unable to join us today.

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She has been a wonderful leader in Ade, and was recognized as Massachusetts outstanding teacher for 2,021 by the National Association of V Biology teachers.

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Here in the Us. We will, miss her today, but we are very fortunate to have another outstanding teacher from Abe Massachusetts. Dr. David.

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Welty, who is joining us in her place. So a huge thanks to Dave, so I'll jump right in by introducing our panelists.

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Mary Lou is a high school teacher at a public high school in Massachusetts, where she teachers, honors, honors, biology, ap biology, and biotechnology.

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She's been teaching for over 12 years and is currently a teacher in residence at Lab Exchange.

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Mary is interested in integrating opportunities to build science skills in person and with digital supports at all levels of science.

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And I personally would like to add that Mary has been an incredibly valuable contributor to the Abe program overall assisting her program site in Massachusetts as well as the International Program Office with Piloting and Development Feedback and Leadership at so many levels so we're really excited to have her back

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with us today and our wonderful stand-in. Today. Dr. David Welty has taught biology, chemistry, and physics over his past 21 years of teaching in Fair Haven, Massachusetts, recently he has taught introductory pre-ap biology, college prep chemistry and ap chemistry, and he was

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just telling us that he's also teaching organic chemistry for the first time.

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So, not a not a small amount on your plate, Dave.

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Dave has a Phd. In molecular biology, in biochemistry based on protein expression, purification and regulation of prov viruses in the bacterial genome he's been an abe teacher for over 10 years and collaborating and co-creating with lab exchange

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Since it began. David, a huge Thank you for joining us today at such short notice, and we're so pleased to have both of you with us today.

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So we'll begin by getting to know a bit more about our panelists and their journeys as educators.

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So, Mary, for those participants who don't know you.

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Please tell us a little bit more about your pathway into science teaching and the role you're now playing with, Abe.

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Messachusetts, and with lab Exchange

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Sure I'm originally from Ohio, and I had wonderful science teachers and became very interested in science when I came to college I had wonderful professors there as well handle that interest in science, but I also dabbled a little bit in teaching in the public school. There.

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Was like a co-OP program with the graduate school of education.

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I could urge my teaching degree as well as my undergraduate degree in science.

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So I did both the premed and the education at the same time.

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I found out I really loved the teaching aspect of it, and I I've been there ever since, so I've been in the classroom I went back for my masters in education, but I've been in Lac classroom ever since that and then in terms of ab and Lab Exchange I

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Can connected to both of them. When I was in college there was a lecture series for some feature.

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It's hosted at the university, and I'm hooked up with other teachers.

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There and discovered the Ade program, and then I brought that into my classes. And then, when Lab Exchange started, it actually supported this Ade experience, and I got connected with them that

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So up, pass it back to you.

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Thank you. And so Mary's been such a great advocate for the teacher voice in how lab exchange has developed assets and saying, This is what teachers really need and use in the classroom.

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And so we're excited to be working with Mary, and I know lab exchange is as well.

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So, Dave, how about you? What was your journey to educational? And how did you get involved in signing? And then eventually lab exchange

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Well, when I was, I'm well. One of the interesting things is Mary and I grew up in Ohio, about 30 miles away from each other, so we didn't meet each other till we're out here, so both to Ohio transplants.

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But when I was at a high state I went into the career office and said I wanted an internship, and so they put me at the National Cancer Institute at Nih, and I just enjoyed the whole process.

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And so I was a technician there for 2 years.

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This was before Pcr. Came out, and when I actually joined the lab after graduating my job was to create Pcr for the lab to convert Southern block techniques over.

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And eventually I realized that if you needed to do anything in science you needed to get a doctorate.

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And so I ended up at Georgetown University, and with molecular biology is my foundation.

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But I really got fascinated by protein chemistry.

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How do the side chains interact? And all that? So I eventually dabbled into becoming a protein chemist?

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While I was there I was teaching medical students, and I had 2 interesting students.

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One had complete recall of everything, but couldn't sort of think things through.

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And the other one was really good at thinking things through. But couldn't memorize anything.

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So not knowing anything about education, I was developing 2 different lesson plans, so to speak, for 2 different learning styles, and that eventually that's just stuck.

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And eventually I worked in a pharmaceutical company for a while, but I had a daughter.

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It was tough bouncing a family, and and working in a lab.

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And I basically made the decision to save my family to go into education.

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It was, seems to be more friendly. I could actually be home.

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Little did I realize that I would be spending about the same amount of hours in education as it was in research.

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It's just that I get to bring it home. And so I get a set one end of the couch, and my wife is on the other end, and I'm grading, making lesson plans.

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But we're together, whereas before I was in the lab and through Pcr.

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I had a couple of bodies in the area, and they said, Hey, this is this Amgen group that's kind of given out.

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Equipment, and and everything I'm like. Well, tell me more.

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And so he and I, and a couple of others. We got involved, and eventually just said, Okay, I'm all in.

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And so I became an ambassador, and I work with Spen Henrik.

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He is a Harvard professor at the time he did the labs for the undergrad, and he and I kind of work cooperatively where he comes up to the ideas, and I kind of help him bring it down to hit the high School level, and I have the spectrum so our beginning learners novice

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Learners and biology all the way up to organic.

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And it's been a a nice relationship. And and one of the things is, you know, you may have heard is, I'm deep into chemistry.

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So my motivation is to help lab, exchange.

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Get more chemistry into their biotech. I mean, it's pretty biology friendly.

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They're becoming stronger with chemistry. But my passion is really to help them get more chemistry.

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And and so that's where I am

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It was such an interesting story, because, hearing about how you learned to teach with all of these different audiences, you know, starting with a adults and then kind of with this range of learners, it's just it's interesting, because it sounds like you kind of started off thinking, about differentiation which is something we'll ask you

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about a little bit later, as we keep going in the roundtable.

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So thank you both for so for being here. I love the stories always of how people ended up in the classroom.

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And so I wanna ask you, now, online and hybrid learning was obviously a a fairly hot topic even before the global pandemic.

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But then once Covid hit and classrooms really ground to a halt, particularly science classrooms that were so reliant on hands-on experiences for their students.

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How did you see lab Exchange supporting you through that experience?

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In what ways did you see it as a game changer?

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Do you see it as a way that it can alter?

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How teachers think about biotech instruction. And let me start with you with that question, Dave, since you were just talking

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For me. It's it's biotech and chemistry is not something the student can visualize.

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And so my whole task, my challenge, is to allow and help students find ways where they can see what they can see.

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So I've used a lot of the assets, the ones that are sort of simulations of not in the molecule world, but trends to help soon visualize that through the pandemic.

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When I was using more lab exchange stuff remotely, I realized that they still need that guide on the side, and they.

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So I use a lot of scaffolding and I pulled it more into the classroom.

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I have found that for my students they need to be able to have.

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The digital, but they also need to have that hands on group interaction.

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So I'm really using a hybrid in the sense that they're using the digital but they're working together to get that social I don't know about you, but I found that my students really took a step back and being able to work together we first in my school.

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I'm not sure I was in your schools, but we didn't have any hands on labs.

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We had no group work for 2 years, and so we had to reintroduce students to allow setting to working.

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And so I've kind of taken the power of lab exchanges, assets, and simulations, and then scaffold it with my background.

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So the students can work together, come to

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Conclusions and and understanding

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That's really interesting. And I've heard a lot of teachers talk about that kind of the incredible value of having those scaffolds, and you can use them at different points in time.

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And I'd love to hear a little more about. You know how you use it to support collaboration and and so is that something you specifically use lab exchange for, or just is that something you're teaching in person.

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And then the lab exchange helps

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Lab it well. The lab Exchange I primarily use the the assets.

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I mean I'll set up either a Google form or a Google, sheet.

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A lot of times I collect data. I find that students, my students, are are deficient and spreadsheet use.

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So I use. That's the produced data that they can actually capture that data.

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And then produce graphs and statistical analysis. So we do a lot of that primarily where I use it through the lab format or learning like protein purifications of the column.

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That's more independent work. Where I'll introduce that so they can get a sense of what the lab is going to be and the skills.

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And that sets them up so that they can then work cooperatively a lot bit

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Thank you, Dave, and for Mary. How about for you?

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Did it change the way that you found you were teaching science when you started using Lab Exchange?

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How did it support you during the pandemic, or before or after

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To me the biggest value that levix team. Yeah, added.

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In addition to the little components, love like visual support.

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Everybody right? It's just a good model, for, tell me.

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But to me it was the flexibility, no matter, no matter the year, no matter.

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Them, teaching like every somewhat flexible to the students who are in the room, to the levels that they bring, and particularly like pre and post pandemic, like.

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Now, students are in all kinds of different places. I felt like students, you know.

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Didn't all reached the same levels when they were online learning.

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Solely in that during Coronavirus pandemic, so now I think it's important to help support them by like diversifying the option available to that like having that that sense of choice not only better engage with them, I think, but also help support them with their needs whether they have

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an individualized learning, plan or not, because you can customize, move things around.

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I can add in things that I know, like that I'm going to use and keep it sort of as a record for students might be absent or missed.

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Periods of learning, but also just have a record for anyone who wants to go back to it later.

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So I've found that flexibility and customization part of a lot of chain really helpful

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And I know some of what you're describing. There is based on that use of the classroom feature in the classroom function of Lab Exchange which I know you're going to show us more about later on, when you're doing show and tell but some of the things I'm hearing from both

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of you are that it can change science instruction by providing greater scaffolds, and by providing some of these visuals and ways to see things that you don't see.

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I love that phrase safe, and also as a way to kind of provide different experiences for different learners.

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And so that kind of brings me to my next question, which is about equity, and, as you know, equity and access is a high priority for the Mgen foundation and for the Abe Program office, and to lab exchange team has been very involved.

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In promoting equity and access in STEM. And so, Mary, I know you have a pretty good sense of this being so closely involved with the team.

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What kinds of assets and resources does lab exchange offer to teachers that might support greater equity and access in their own classrooms?

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One component is just the availability of the assets in different languages.

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So one big push and lab exchange has been to translate the Ab content and other concept into a variety of languages I think right now it's available in 14 different languages to provide support for students everywhere in terms of like some of the background details.

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They they're made. They're dedicated to making it free.

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So that everyone has that level of access and mobile first, for quick learning, learning, loading times so that they can make sure that everyone can use it regardless of the kind of technology they bring to the table.

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But to me, another component that leads to this equity in terms of science, learning, and thinking is they're actually they're send simulations. So their simulations are really science skill focus.

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So students can make mistakes. They can go through and change different variables.

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So instead of just having like a passive experience, maybe they're absent, or they don't have access to lab materials, they can still get some of those science thinking and science skills, virtually putting them on a better playing field for whenever they want to act with more science

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That's so important. And especially as we think about digital equity I mean, that's obviously something that plays into this as well.

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And I invite anyone who's in our audience. If you have had experiences with using lab exchange to support greater excess, greater equity for that, you're the populations that you work with.

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Please, share them with us in the chat. We would love to hear more about them.

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And, Dave, how about for you? How is your how have you used lab exchange in a way that provides greater access or diverse diverse access for yourself?

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Well, one of the main reasons is representation. If we can't see if our students can't see themselves in the field, then they don't see themselves in the field.

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I mean, and I was working in a inner city summer camp, and we were trying to help students who are Esl.

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Second, language, English second, language. Speakers see themselves as scientists, and I was able to go in and put out narratives of scientists around.

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The entire world. Scientists of color, different pathways. And and we did a an interesting experiment.

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And we. I was working with a a scientist of color, and she and I were standing together in the front of the room and and we asked the question which one of us is the scientist and we are hoping they'd say both but having a white beard white hair, being male they all pointed to

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Me, and they didn't see the other science as being one, because, being a female of color.

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And so that was really striking that we need to do a better job letting kids know that scientists is is not the white male.

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It's it's it's everybody. And so that was just a really powerful and I don't know if you've noticed it or not.

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But a B's diversifying their characters in their simulations.

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So it's just not a white male there, and it's it's female, different hair, I mean, very subtle, but it's it's there.

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So they're trying to change their entire representation.

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And again the narratives that you can go in and see the different post stocks and and everything are also extremely powerful.

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I remember some of the students saying, Wow, I didn't realize they were scientists that looked like me.

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And it just sort of changed my entire perspective. So the narratives could be extremely powerful for us to change

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Thank you for sharing that, Dave and I I appreciate to the fact that this is a work in progress for all of our organizations in terms of transforming the messages that we're sending to students about who they are what they're capable of the fact that they can do, science that

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They can step into some of these pathways, into science, and that lab exchange has been part of that effort, and so it's great to have so many more resources than used to be available at your fingertips as a classroom teacher for those things.

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I appreciate both of your answers to that, and I see that we are at time, and I don't want to step too much on the time for show, Intel, because I know many people are anxious to see what does this look like?

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What do you actually use with your students in the classroom?

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And so for the next, you know, half hour or so we're going to be asking our panelists to share their screens and walk us through some examples of how they use lab exchange with their students.

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I would love to invite all of you in the audience to share questions in the chat, and if you have ways that you use lab exchange that you think are particularly exciting or engaging for students, please put those in the chat as well, and we may ask you to speak to one or more of those if we

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Have time. At the end of the roundtable, so please share with us in the chat.

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Okay.

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And Dave at this moment I'll I'll mute myself and turn the screen over to you.

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There we go. Can you everybody hear me?

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Yes.

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Okay? Well, unfortunately, I'm on my wrong screen. So give me 1 s here that we'd had that all worked out

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There there we go!

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Okay, okay, so this is an example of how I adapted a presentation that I was doing for students.

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And I. What I'm doing is I'm using models using multiple teaching techniques within this presentation.

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And a lot of the images that I pull. I've gotten from Lab Exchange.

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So one of the things that I want to make sure that my students know is modeling.

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And what does, or what is our best idea of what the molecular world looks like.

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And so here is a typical model. Yeah.

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Hey, Dave? Hi! I see. Sell my brain. Trans. Or is that what you're sharing

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Yeah.

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Okay.

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Okay, great just checking. Someone mentioned.

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Do you see this diffusion?

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No, it says. Still membrane, transport.

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Okay. So I'm on the wrong screen. I hit something wasn't supposed to hit

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If you stop sharing, Dave if you stop sharing, and then start again with the we're all we were joking before the round Table.

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Okay, do we have to? Is the fusion up right now?

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That we're all rusty on these things now, but we'll get there

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Yes, now it's diffusion. Now it's diffusion.

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Thank you. Mary. Okay. Now, how are you doing? And we can see the animation model.

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Yes.

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You.

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Okay, so this is, this is an image that came from Lab exchange.

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And this just gives students a better idea of what a molecular model would look like for a so remember. And Whoa

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I'm sorry I'm having

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Okay? And then so as the students are working we're one to one school.

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And as the students are working, they can sort of put their their desk in as we move along.

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And then we're we have embedded simulations.

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Okay, so here's the predictions which way will the oxygen move again?

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This is a simulation that I pulled out of Lab Exchange, and so they can sort of make their options observations and place them there

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Again another one. So this is a technique that I use a lot.

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It's called a C. Think, wonder, and allows students to do a deep dive and same thing.

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I'm having them mention 3 things they see 2 things.

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They think one thing, that they wonder. And then what's the summer?

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And so when I hit the hyperlink

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Come on!

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There we go!

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Okay. So now you've seen we've got exactly 2 loud exchange.

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I can start the simulation

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There we go. And so the students are making observations, and they can start to then see a phenomena that if I was just to do this in the front of the bench with red dye and some water, they're not going to be able to really get the sense of what's

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Going on like that. So this is an example of how I took assets from Lab Exchange.

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And embedded them into a presentation. Another way is that we can do pathways.

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Okay. And so this is a beers, Lambert and standard curve pathway that I created again, using assets within lab exchange.

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And I can pick and choose things that I want my students to read, to participate in, to follow, and this would be for an Ap Cam.

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And so there's a text. Here's an interactive

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And it basically is, gonna take a student through the whole process of how

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Beers. Law would work. Okay?

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There we go! Hi!

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And we can just

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Asking simple questions, and they can move this with their cursor.

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Okay, how to read it. Standard curve. So this did basically gives them the steps that they're gonna go through.

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To figure out how to set a standard curve and how to read it.

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And then there's some more images, and then there's this curve fitting simulation from fat.

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So it's one of the things that I really like about Lab exchange is they actually have many of the fat assets.

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Not only current, but some that are passed, and sometimes I can't find them anywhere.

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But on lab exchange. And so again, how did your curve curve fitting, and the one that I use the most is the beer's law, and I have not found anything that's quite as good as the bears law and what's really nice about it is that you can adjust

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All of the variables in spectrophotometry.

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So we turn on the light, and we start to read the transmittance.

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We can actually go in. And I can apply the negative log to this transmittance, and I can get absorbance.

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And so it's just extremely powerful. I can change the path length.

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And this is just, in my opinion, really strong change.

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The chemical substance, and so

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That's there. And then what my students do is awfully.

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I put one of my documents on that I've created.

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Put it right there on a lab Exchange and so then they have the dot there.

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So I was able to do this lab during the pandemic when my kids are at home, they can do the whole thing, and they could actually do the lab.

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Now they would have to fill this out with another one, but it's right there.

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Another one that I and I was involved in the making of this one is with Chatlier's princess.

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And so this is dealing with equilibriums.

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And what's nice about this is, I have both an older and a newer version of it.

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Wait for this to load, and so, as we run through, we can see the reactants changing and concentration.

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And we can see them reaching equilibrium.

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And so then it reaches a constant equilibrium, and so this is another one where I have students collect data, and they will then calculate what is the the Q QR.

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Of the reaction? Is it still moving towards products? Or is it going backwards?

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And so I I use that. And that's that's one that was I was involved in.

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And I we'd strictly needed something for leisurely a so I had a lot of say in that again.

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I've buried some not buried, but I've connected some Google docs that I created.

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That allows the students to sort of investigate what's going on.

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Concentrations of the reactants in the products.

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And so again, that's that documents right there. So everything is self contained, and I can create it.

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Just the way that I I want it, and so that's where the tailing comes in the crafting, the scaffolding.

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And then I teach both organic cam and a Pm.

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And I've signed up for the end of the year to have the protein column chromatography oops.

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Sorry. I just went out. There we go, and so this is one that they're gonna use to learn about column chromatography.

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And so I use column, chromatography to teach chemical interaction it's kind of nice, is Mary.

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And I actually way back in the day, made a video. On how calm chromatagy works.

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So that's always kind of fun to show the students that hey on the Internet.

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And so that's what brings me a little street credit.

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There and then we got the simulation for how protein chromatography works, and how the amino acid side chains will interact with a hydrophilic or hydrophobic.

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And so those are the main ways that I use

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Lab exchanges. I build pathways that then I share with the students, and they have sort of a scaffold and set of steps that allows them to learn a new technique.

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Master new technique and prepare for a elastic

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Any questions.

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Dave, thank you so much for sharing that, and I know we do have a question in the chat that, Mary.

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Maybe you can address when you're going through your show Intel, which is about when you're actually creating the pathways like David showing us.

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Oops!

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And you want to include an interactive from another website. Whether that's possible to add or whether you can only use existing appets.

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So, Mary, I know that you can probably address that when you're doing your presentation, so I'll turn the the camera over to you and let you share what you have for us.

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Okay. You don't. I'm gonna just leave my video off because I know I've been a little laggy.

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So just in case, if this helps with the smoothness I'll leave it off.

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But I we'll keep an eye on the chat just in case.

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So I just went to Lab Exchange Org. You can see the whole library here.

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I'm gonna share what I use for both my biotech and Ap.

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Classes or honors classes with the Abe cluster.

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So in case you're not familiar, the library is basically just like a repository of all kinds of things.

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There are interactive components like simulations or scrollables like Dave showed off.

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There's text and video assets, and you can sort them and search for them either by the type of interactivity.

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Maybe a subject area, a particular source that you're interested.

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If you like. Some of those like that, like they've mentioned, or particular places, or just with keywords.

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So if you wanted to find, you know the biotech cluster associated with Abe.

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If you search biotech it'll come up.

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It is this cluster, and what a cluster is is just whoops, what a cluster is just a group of pathways together, sort of beam, so that it came.

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Be sure to get together, and you can see there's a bunch of different pathways here

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In each pathway is a series of learning experiences. So, for example, this tools and technique one, this is for transformation.

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And it's completely editable. So I clicked the 3 dots that say clone, and it makes it my own personalized copies so this is what I do for my classes.

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You have 2 options, you could choose the URL link.

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Share it out with your class. Anybody can access it. You don't even need a login.

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It's public in the public library, and you can use it.

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As is if you wanted to create a customized version. If you make a clone, it looks like this, so you can change what the description is.

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If you want to personalize so learning goal, you can change.

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You know the order of these assets? If it's a video like this, long video is 7 min.

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If you want to clip it, you can use the little scissors and show just a section of it or, as someone asks if you want to add things so you could click this, add content and you could add your own content.

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You could add content from other places, if it doesn't exist in a library, if it doesn't, just in the library itself, you can choose this, add new content, and you can add in a link to something that you're interested in by just adding a document you might add you know a customized question, if you

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Want some formative assessment or an image, something that you use already a text.

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If I was linking to a simulation it would probably be embedded, either in a document or text.

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Is my guest. And students can access it as part of your pathway.

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So anything you add just kind of appears in your little list here and students will see it as part of the whole package.

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Any of these customized versions end up as private private to you, because you're adding things that are yours.

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But you can still share them with your students, and you have 2 options for that.

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You can just share the URL at the top. That'll take them directly to this pathway.

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And that's one way to shut. Share it with your learning management system, or you can also share through a clack, and I'll show you how to do that in just a second.

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But I just wanted to throw off some of the features of things that I've added.

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So, for example, like here, like a graphic organizer for students, I find that a lot of times, because the Abe sequence is over.

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Several days. They need a reminder at the beginning of the day to see sort of where they are in the pathway, so we start off with that graphic organizer, and then for both of my classes the simulation is really helpful, because in the end, you if you're not familiar with these

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Simulation what they have you do is sort of walk through the experiment, but they also include opportunities to predict and reflect on your result, and they present the information at 3 different levels of detail.

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So if you are just starting this, or aren't familiar with this technique level, one is a good fit because it has a lot more detail and description in the protocol section, if you maybe have a more advanced group, you can choose level 3 or you can let students self select it gives them

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Some background information just like you would before you start about the technique itself.

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It gives them a list of all the things you're using you can click on these.

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Take for more information if they're not familiar with these tools, and then you can predict.

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So I thought this was great, really good. This is the heart of what this technique is by visualizing what's happening in the tube, right?

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Sometimes it's hard for students to picture. Okay, I know I'm dealing with bacteria.

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Somewhere in there. It just looks cloudy. But this really drives from the point of what transformation is.

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I will go back. Thanks, Teresa. I see your questions in the chat.

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I will go back and show you again how to make a clone.

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Of a pathway, and you can't create a cluster.

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But when I show you the classes, feature, maybe that'll help address what you're looking for.

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But again, the visualization is great, and you can make predictions.

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So students can select one, and then in the reflection, when they get to the end, they're represented with those predictions and can reflect back on them. So here's the lab scene.

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They can move all these pieces they can carry out, add things through the protocol on the side that tells them sort of a a list of stuff that they can do to complete the activity but they don't have to follow it.

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I know my students kind of just explore and see what they can see, what they can play with.

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And then even just a click to experience. So when you get to results, she does carry through whatever you did.

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So if I didn't do anything in the lab. I'm not going to get any results, which is great, because then I can have my students reflect back.

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Okay, well, what could lead to this? Why didn't you get new results which depths might have you done different?

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And it does show them the ideal results. So you can think about that as well.

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And then in the reflection section it presents them with some questions, having them thing through more about the technique.

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Now let me just jump back to hear their cluster again, and if you're an 8, if you're from one of the Ab sites and want to connected to the 6 labs this torque section, if you click one of these that shows you which pathways are associated with each of these labs

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And gives you a suggested order. But of course you could use all of them if you'd like and it also shows you based on themes. So if you're just like, how do I look at the ones that have techniques, you know, it highlights those ones.

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And then, when you're wanting to clone right, let's say I click on one of these

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When it open you'll see there's some options here at the top to favorite, so that just will.

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We'll put it in a section on your dashboard so you can come back to it you can assign it to a class, and I'll show you that just now you can share it to Google classroom or copy the link or share it.

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Socially. And then at least 3 dots is where you find the clone button.

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You can clone any pathway that exists in the public library, or you could create a pathway from scratch.

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But cloning will copy this one. So just getting clone creates a cop of it for you in your dashboard.

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It copies everything there, and gives you those options to move things around, because you can see right now they're static.

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There are no arrows and no edit button, but the cloning feature.

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When it makes the clone, then I have all those options available to me.

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To edit the order in sequence of things, and I can't.

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One thing I can't edit is the content of someone else's asset.

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So, for example, this is by welcome genome campus. I can't go in and like change the words that they used because it's their asset, but I can add context around it.

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So this notes feature, lets me add, a personalized note.

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So if I want to tell my students okay, you know you can.

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This is optional background, or if I want to give them a definition, kind of thing, I can add those things, and they sit on top of the asset to help support through students when they're experiencing the pathway.

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But is, doesn't change anything about the asset behind it.

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So, yeah, you can make all those changes. And that's what we have so customized plastic class so let me show you the classes featured.

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So you'll find the classes here if you go to dashboard.

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This is where all kinds of things that one is any content you've personally created.

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So when you create a clone, your clone pathways will live here.

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You can add your own content if you want somebody to experience just one of these pieces like a document or a text, or a teaching guide, you could create a pathway from scratch upload some audio files like podcasts or add assessment pieces, there's also favorites so anything you star Ends

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up here, so it's easy to find. And then the classes option.

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So this is great for for teaching context or for professional development.

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I've seen we've run like webinars and professional classes this way.

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If you want everyone to have access to resources. But if you click this, create a new class, you'll see a double Po here.

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If you click on this, you can kind of see what I'm showing off to my students.

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And in my class, basically, I can show off what I want to show them in the public view that I've posted and then I can have things kind of waiting in the wing, depending on when or the type of class I'm interested in sharing content.

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With I'll hide or remove these things, sort of as I need them.

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And show only a few things at a time. It kind of depends.

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So you can't create a cluster. That's a list of pathways.

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But you could basically do that in this class context, you could list a bunch of pathways that you're interested in sharing with your students.

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And they can access it through this class. They just need to enter this code.

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So you can see this class code up in the corner is what they would add in when they go to their their desktop.

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It gives them an option to join. You can see anybody who's joined here, and you have access to.

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Let them in. So it is a private class, so that you don't have to worry who's in your class?

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You can make sure that you approve them before they get in, and then it shows how your students interact with the content that you post.

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So you can see like different pieces here shows how much they completed if they've completed it, how much they got correct if there's an assessment built in, so you can kind of check in on students as they're going, and you can download that report like I use it more of like a

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Phoneative assessment. If everyone's working on something, I can kind of check in with students as they progress, and with those learners you can go through and assign them things individually.

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So here you can assign a particular piece of content. So if I wanted to differentiate for some of my students, maybe they've missed something in class that I want to assign.

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Them to catch up. You can assign them just a single piece, and then they get messaged it directly.

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You can check in on an individual student progress. If you only want to see one person at a time, you can see which pieces they've started or not started, and share that back with them, or you can message them directly.

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If you want to chat that way, it sends them a private message.

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So those are some of the features of classes and there is a discussion board on that as well, so that you can use that as well in a hybrid way.

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One thing I found is helpful, even if you're not using the classes. Feature right?

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What's one more place to go if you post your content here, and just share the URL it'll automatically track all these things for you.

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So you students don't have to go to live, exchange, and then find the class and then find this piece.

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If you just post this URL here, if you just copy, paste the the address bar.

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URL, put it, wherever you are putting anything for students like Google Classroom.

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Then they'll have access to things in your classroom, and it'll track all that progress for you.

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So this sort of customizes the URL too, so it sends them to this particular place

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Alright. I'll pause a second and see if there are any questions that appear

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I haven't seen any new questions, Mary, but I do have.

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There was a question that Teresa asked earlier that, I think, is probably worth talking about, which is, when you're making a pathway, and you want to include an asset.

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Something like an interactive, that from another website. Can you do that?

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How do you add assets from other places

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Right? So it depends on the kind of asset that it is.

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Let me just go to my dashboard dashboard if you are using something that has, like an embed code, maybe you can add that in if you know some HTML tricks.

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But the easiest way to do it, and what I would do for my classes would be just to add it as a text asset and put the URL where I want to send them, or whatever other instructions I want them to preview while they're looking at that simulation so if I just

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Click, add content. If I find a simulation link here

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And instructions right? I would make it one big sort of tech asset, and then when you go to save it, it will appear whoops. Let me

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Instructions.

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It will appear in your library, and then you can embed that into a pathway, or share it out directly, so you can embed things from anywhere.

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They're just private to you. You won't find them in like the search bar, but you can find them in your dashboard

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Thank you, Mary. This is great

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Sure. Yeah, let me just share out also this remote learning cluster that they've made to help explain.

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How to use lab exchange. If you're not very familiar with it, you can see it reviews all these things I've been talking about how to create your own like class, how to teach lab skills and using those simulations.

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There's also experimental design simulations that look a little different.

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It's more about dragging different pieces together to create an overall experiment like if you do a restriction, digest, what's the next step?

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Oh, you need to run a gel kind of thing. So it showcases that kind of experimental thinking as well.

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And then also, I wanted to show just in case you didn't see any dashboard whoops, money, content type, cool cluster

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I just wanted to showcase the different language components.

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So you can search in this filters on the side by different languages.

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If you're interested in finding something that we you can also, if you find something that you like in English and want to change it for your students, you can just click, change, and then you can highlight all the different languages.

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It'll automatically change the content pieces to the language that you were. Select.

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Ing

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And then students can experience it that way

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Yeah, and then in terms of that, if you're looking for extra things to sort of support this, these are particular pathways or learning experiences.

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But in the library you can search so if you're like, okay, I really am interested in, you know, gel electric freezes.

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But I'm looking for a way to assess my students.

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So I'm gonna use content type questions. Just see within there pretty do like to freeze this and search that way.

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You can kind of build through by sort of your interest if you're looking for interactivity or assessment, and it will search for you.

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There's also other types of skills, our science skills that help support it.

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So you can see all there. There are a bunch of pre made things that also exist on the pathway.

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Things they've designed directly. So love, exchange, or things from Amy.

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Scholars or other content sources all exist in library.

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Pause, again

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So I'm just gonna jump in real quick. Here, Mary.

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Sure.

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One of the things that several of us do is we will make a pathway of assets that for us.

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So they were sort of making libraries for ourselves, and so if we can go through and just pull out a bunch of assets, and that's one way we can just keep track of everything.

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That's that's there, for you know, protein.

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Chemistry or bears law, or something like that.

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So I know several of us do that as sort of a a way that store things in a organized manner

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And we have a new question from our participants. Is there a limit to how many items can be in a pathway

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I think there is a technical limit. It's pretty high I think it's like 30 that 35 or something like that.

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So if you're using it just as like as a folder, then yes, you might need to create multiple one.

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But generally I think of it more as like a lesson that I might give to my students.

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So, you know, I try to limit it in the number of things I put in there, but I think the limits around 35, if I remember correctly.

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Alright!

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It seems like for a pathway lesson keeping it under, you know.

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10 seems to be the optimum amount that I found you know.

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Otherwise they're just overwhelmed with the number of assets they're having to deal with

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That's a great point, Dave and I have it's sort of along the same lines, and you showed a little bit of you.

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You showed a possible solution with the remote learning cluster that you sure.

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But have you heard any kind of common challenges date from your perspective?

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Are there common challenges you've run into when working with Lab Exchange, or that Mary, that you've heard about from other teachers and working with Lab Exchange.

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And what advice do you have for teachers as to how to address those challenges

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I think the biggest thing that I struggled with and that I've heard from others is the search engine is difficult to get to focus in.

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So that's that's one that's that's gotten.

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Better, but it's it's just trying to narrow the what's your you're looking for?

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And what I have found is I sort of do my big umbrella topic, and then go in and look for the type of so if I'm looking for a simulation or a scrolly, and then, after that, if you know or the creator so one of the powerful things about

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The lab exchange is is just, not things created in house.

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They're starting to collect from all other groups. And so it, you know a little bit, either it's fat or Concord consortium.

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And Jen, that can also help help narrow. There's just so much out there that, having some strategies to sort of focus, your search really helps

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Yeah.

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Which is a great skill. I think all of us are finding overall. As the amount of information out there grows so exponentially, Mary, for you any, any challenges that you hear lately

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Well, we're be a yot school. So because students are all bringing different kinds of devices some of them have really small screen sizes so or or correct pads that don't work like everybody is something right.

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So one thing I found helpful in the simulation, a nice gem that they've created for accessibility reasons right like, if you have a really small screen let me see if I can.

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If, as you resize this, you can see this screen kind of changes.

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What what I can see, so one thing, if you're the trackpad isn't working, or they're having issues like clicking.

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If you use the tab, you can kind of see there's like a pink box or a pink outline that's appearing here.

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You can tab through the select these different pieces. I'm just sitting tab and enter.

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So that if it's something that moves like one of these micro atp, it brings up this menu, and then the menu you can tab through to decide like, okay, I want to move this microwave PET to the P minus tube and it'll automatically do some of the moving for

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Them so that's great for students who have, like smaller screens or broken computers.

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Or you know, for whatever reason needs to use keyboard controls or screen reader can interact with this component as well.

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So that's one of those tricks like sometimes the physical, like clicking through of like moving things around and doing the lab virtually can be a little tedious, but those are some shortcuts to help with that, the other thing I would say, is the links right like now, that

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Everything's digital students have like a 1 million logins, and they have to go to a bunch of different sites.

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So to me that shortcut of just sharing out the URL from from my class that I've created, sends them back to the same place every time they don't have to like remember a 1 million logins.

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It kind of funnels them there. So if you share the URL from your classes, Page, that will help sort of streamline.

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That activity.

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Yeah.

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That is a great tip, Mary, and I wonder. I know we have one of our master teacher fellows.

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More than one is actually interested in the development process at Lab Exchange.

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So can you I don't know if you can speak to this, but can you share a little bit about what the you know when Lab Exchange decides to develop something new, like a simulation and Dave, you work with them as well, so what is the process kind of from idea to reality you know how does

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What's the journey that happens to create an asset or a simulation

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It very much. Oh, sorry, David, you can go ahead if you'd like.

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No go ahead, Mary. I was. I was just taking a big left to think

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Okay, I was gonna say it very much follows the process you would do if you're creating something for your classroom right?

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You'll start off with the scripting base, and usually what they decide to script depends on sort of what I ideas people bring to the table like, is there need like, do we need a model of something that doesn't exist?

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And they start with that like, really, they do ask features like, what what do you need right now?

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Sort of what isn't out there, and they ask people to script it.

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You'll create a script which might be like a text document or a graphic like slide script with pictures to help designers understand like, what do you trying to visualize?

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What's the general flow of something? You're trying to create?

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Or if you're doing a labs, them, you might start with the protocol and kind of think about what context you build around that.

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So once it goes through scripting, there's a lot of rounds of feedback, so they'll usually get feedback from what they call the content team.

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So that has teachers. They call them subject matter experts.

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So other scientists in the field, university professors and other university staff as well.

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So they get feedback from not just K. 12 teachers, but also universities, cause they're trying to bridge that gap and and sort of span the spectrum of student.

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So they want to make sure it's aimed at a virtual level.

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Then, after they get the feedback on the content itself, they'll send it off to what they call development.

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And then the pictures will get made by graphic artists.

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They'll build sort of the motion and design between, like those interaction points in the you might think like, Hey, you know, this isn't challenging, but to like, make a microwave at move that has all these dials that you can set them.

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Volume. It is like challenging to make it technically responsive.

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And a way that scientifically adds, so that's another piece they like try really hard to make sure all the things model or match an in-person experience as much as possible.

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They want students to be able to change all the variables in the one where you have a pelleted cells like they show they show the pellet being created after you send your future.

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All the little details or things that you have to communicate to developers who are often or non scientists, and are learning science all the time, thanks to content creation.

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And then once they have, like a model of this, so they'll mock up a working model of the simulation or an asset that has motion.

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And then we review it again. So the content team goes back through and it's like, Hey, does this match?

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Our vision. Just do all these pieces, you know. Are they scientifically accurate?

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Are they meeting our learning goal? And then they'll push it out for quality assurance of the writing team will go through and make sure that it's you know, grammatically correct the excessibility tamer.

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Use it to make sure that it's accessible for both like screen readers.

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But like visual components, they've carefully chosen a color palette to make sure that everyone can access the colors and then and then it'll get put out.

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Maybe public and it's constantly undergoing, you know, user testing as well to make sure that it's meeting the goals that they've sort of outlined.

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That's so great

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So it takes a little while. Simulations is the biggest

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Mary, thank you so much. That was the quickest explanation I've ever heard.

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It was wonderful, and I know we're at time, so we need to wrap up.

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So I want to start by saying a huge Thank you to our panelists.

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Mary Lou and Dave, Wealthy, and we hope for all of our participants.

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This gave you some ideas how to use. Lab exchange for your own classroom.

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You're welcome to visit us at the Abe website, and we also, we've pasted the Lab Exchange address in a few times.

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If you're not familiar with it, we encourage you to explore it.

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Next month, on the 20 s of February, we will be hosting another round table on real World science, and will be joined by 2 of our master teacher, fellows from Abe Australia.

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Aidan Quinn and Joan Donaldson to tell us a bit about strategies.

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They have developed. I want to say, take just a moment to say thank you to our Abe teacher community, and particularly a huge thanks to the Mgen foundation, because they support both lab exchange and the engine biotech experience.

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So we're very grateful to. And Jen foundation for, that.

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We thank you all for participating, and have a great rest of your day, and thank you for joining this Abe teacher roundtable.

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Take care, everyone. Bye, bye.