

00:16:53 Chonda Long: Welcome everyone!  
00:17:01 Faith Peddie: Hi everyone! Welcome!  
00:17:08 Linda Fulmore: Hi from sunny AZ  
00:17:19 Trena Wilkerson: Hello to all from Waco, Texas!  
00:17:21 Dr Deborah Smith: Hello everyone from Antioch, TN  
00:17:22 Robyn Headifen: Kia ora from New Zeland  
00:17:28 Jaclyn Murray: Atlanta, Georgia  
00:17:30 Jan Back: Hello, its Jan Back from Tennessee.  
00:17:33 dana dulzo: hi from novi mi  
00:17:38 Cynthia Bryant: Greetings from Springfield, MO  
00:17:41 Jeanetta Glass: Memphis, TN  
00:17:43 Tina Hill: Howdy! northeast TN  
00:17:43 Derrick Thompson: Derrick Thompson from New Jersey  
00:17:45 Hong Pun: Hello from San Jose, California  
00:17:48 Beth Kobett: Hi from Maryland!  
00:17:51 michael Lanstrum: Hello from Cleveland, OH  
00:17:52 Dawn Lybarger: Hello from Delmar, Maryland  
00:17:52 Kay Wohlhuter: HI from Minnesota  
00:17:52 Robert Berry: Robert Berry from Charlottesville, VA  
00:17:53 Melissa Medici: Long Island, New York  
00:17:55 Pui Ho Wilson Tsang: Hello from Santa Clara, CA  
00:17:55 Carole Bamford: Hi from Montreal, Canada  
00:17:57 David Dai: Happy Wednesday from Mobile, AL!  
00:18:09 Dr Deborah Smith: A challenge for me is standard deviation  
00:18:12 Robyn Headifen: Statistics is a an area that many of our teachers  
have not been trained for or see themselves as teachers of - they still identify as  
being mathematics teachers  
00:18:12 Kelly Ward: Hello from Angelina National Forest, Deep East  
Texas!  
00:18:13 Amy Brunson: Hello from Monticello, Arkansas  
00:18:15 Jennifer Wall: Jennifer from Christiansburg, VA  
00:18:15 Lynn Rakatansky: Hi from Providence, RI.  
00:18:16 Patrick Montague: Hello from Weslaco, Tx  
00:18:18 Ann Assad: Hi, Paducah, KY  
00:18:20 William Speer: Bill Speer Las Vegas  
00:18:21 dana dulzo: statistics are more than mean median and mode, we  
need to suport a better overall understanding  
00:18:24 Beth Snoop: hello from holland, mi  
00:18:34 Dewey Gottlieb: Aloha from Hawaii! This is Dewey  
00:18:36 Olivia Calabrese: Statistics is the most applicable subject  
for students to understand the world. People lie everyday with statistics and to be  
able to understand and seek a true knowledge is important  
00:18:44 Jan Back: Statistics need to be taught in secondary school  
because most if not all college programs require some type of statistics class as  
part of their program.  
00:18:45 Megan Crim: Megan, San Diego  
00:18:50 Amy Brunson: Statistics tends to go on the back burner.  
00:18:51 Mollie McDermott: Hi from Buffalo, NY  
00:18:57 Tina Hill: statistics can be whatever the writer  
wants...consumers need to know how to read statistics

00:18:57 Derrick Thompson: Teachers are not willing to teach AP statistics

00:18:58 Maria Leticia Garcia: Hola from Guadalajara, Mexico

00:19:10 Cynthia Bryant: Thanks you Gail and Chris!

00:19:10 Lesa Turner: Hi from Springfield, TN - Statistics are everywhere!

00:19:13 Robyn Headifen: one challenge is to have them not teach statistics like a mathematician

00:19:16 Megan Crim: Teachers view calculus as the holy grail and often dismiss statistics as 'lesser'

00:19:17 Brenda Carvalho: One challenge is understanding how the standards spiral throughout the progression. We don't have reteach everything from the beginning rather build on what they already know. Make it real life. Use real data.

00:19:20 Kelly Ward: TEKS do not adequately cover Statistics in a systematic way. It's covered hit and miss spread throughout subjects and grade levels.

00:19:20 Susan Woolley: Lots of mathematicians don't consider it to be "real" math. But it is the most applicable!

00:19:23 Alina Castillo: Mathematics teachers typically did not study statistics as math majors.

00:19:25 Patrick Montague: Every one can use stats to make sense of data correctly

00:19:25 Donna Brink: Big Data analysis continues to provide great opportunities for our students.

00:19:25 Mollie McDermott: The amount of data in our world is growing and growing, so the earlier students understand statistics, the better

00:19:29 Jeanetta Glass: Challenge: helping teachers overcome their fears and feel more comfortable with statistics

00:19:40 Brian Odiwuor: Brian from Syracuse NY

00:19:43 Beth Snoap: the more we teach stats, the more we can find 'fake news'

00:19:44 Dawn Lybarger: Stats is one of the easiest real world applications, yet is the most often skipped content in math curriculum.

00:19:45 Kerry Gruizenga: Hello from Billings MT!

00:19:46 Dewey Gottlieb: Statistical reasoning helps teach our students to be critical consumers of information and to make informed decisions

00:19:50 Daniel Irving: Hello from North Providence, RI!

00:19:52 Bethany Cybak: Hello from Dublin, Ohio

00:19:54 Susan Woolley: A large portion of the math SAT is statistics and the need in the industry after graduation (much more so than calculus).

00:19:59 Susan Woolley: Sue Woolley, Carlsbad, CA

00:20:02 Jason Wright: Hello from Howland, Maine

00:20:03 Brenda Carvalho: Sacramento, Ca

00:20:04 Mollie McDermott: A challenge is that many teachers don't understand stats well themselves and are nervous teaching students

00:20:05 David Dai: Stats and data analysis are not concepts that most teachers are comfortable with.

00:20:07 Lorie Huff: Hello from Fayetteville, Arkansas

00:20:07 Kelly Ward: College statistics is not necessarily required in teacher preparation programs.

00:20:13 Keisha Bailey-Garvin: Hello everyone...I'm from Charlotte, NC  
00:20:14 Megan Crim: Challenge: Many math teachers fear problems that are messy and real data analysis is messy!  
00:20:29 Alina Castillo: Alina Castillo from Chapel Hill NC  
00:20:31 Sara Brown: From Milwaukee, WI  
00:20:33 David Berger: Hello from Eau Claire Wisconsin!  
00:20:38 Emily Roberts: Hello from Birmingham, AL!  
00:20:42 Kerry Gruizenga: Many teachers are not well versed in statistics AND they are afraid of variation!  
00:20:52 Megan Crim: Will a recording of this presentation be shared? I want to share with my department!  
00:21:00 Jan Back: Lack of confidence in statistics and teaching statistics at the high school level.  
00:21:04 Cynthia Bryant: Yes, the recording will be provided.  
00:21:04 Kerry Gruizenga: Statistics are everywhere! Informed citizens have to know stats...  
00:21:39 Nicholas Van Epps: Shout out to small town Wisconsin  
00:21:42 Faith Peddie: Please ensure that you responses are "To: All panelists and attendees"  
00:21:48 Faith Peddie: And enjoy!  
00:22:11 Tancy Wenrich: Thanks, Faith!  
00:22:14 Jennifer Rising: Hello all from Maui, Hawaii  
00:22:17 Chi-Man Ng: Statistics is not always taught in school.  
00:23:17 Mary Dugas: Hi! MaryD, Louisiana  
00:23:39 Leslie Sorace: Hi from Arizona!  
00:23:49 Elizabeth Devereaux: Walnut Springs, Texas - Statistics saturate life  
00:24:13 Shaneille Samuels: hi from Jamaica  
00:24:14 Said Chatir: Hello from NJ  
00:24:21 Chonda Long: Emily - If you have a question you can put it in the Q and A box  
00:24:24 Jeff Koenig: Hello from CA  
00:24:27 Kenneth Yowell: Data is dynamic...I love that!  
00:24:31 Rebecca Strom: Hello from MN  
00:24:39 Rebecca Folsom: Hello from Tallahassee, FL  
00:24:44 Mike Shaughnessy: hello Jane!! Mike  
00:25:45 Shaneille Samuels: Students might ask when will this all be over  
00:25:48 Linda Fulmore: do not see slides  
00:25:57 Malrene Naquin: Hello from Long Beach, MS  
00:26:03 Kelly Ward: Will prom be cancelled? Silly, but important to them.  
00:26:09 Tancy Wenrich: hahaha  
00:27:35 Kelly Ward: False positive rate, false negative rate!  
00:27:42 Trena Wilkerson: I see a slide on knowing how to ask the right questions.  
00:28:09 David Barnes: Are you seeing a cover of Catalyzing Change?  
00:28:20 David Barnes: Are you seeing a cover of Catalyzing Change?  
00:28:21 Mike Shaughnessy: I am

00:28:26 Robyn Headifen: my question is how do you accommodate the false negative/positive rates in modelling

00:28:29 Chonda Long: Can everyone see it now

00:28:32 Chonda Long: I changed a setting

00:28:37 Malrene Naquin: I can

00:28:40 Jeff Shih: yes

00:28:47 Shaneille Samuels: agreed

00:28:48 Mike Shaughnessy: Seems better

00:28:50 David Barnes: Thanks!

00:28:52 Mary Ochieng: Yes

00:29:01 Beth Kobett: yes

00:29:10 Penina Kamina: Hi Mary O

00:29:18 Lynn Rakatansky: yes to book cover, but we cannot see the speaker, Gail.

00:29:40 Lorie Huff: I see both the book cover and Gail.

00:29:41 Lynn Rakatansky: We see Chris.

00:29:46 Cynthia Bryant: I see both

00:29:47 Timothy Fischer: Nice

00:30:02 Lorie Huff: Click on your view options at the top of the screen.

00:30:08 Cynthia Bryant: I see both the slide and Gail

00:30:08 Beth Kobett: I can see everything (Gail and book)

00:31:12 Chonda Long: What document?

00:32:45 David Barnes: @Alison - Catalyzing Change is publication for sale by NCTM. It also has an executive summary and other supporting materials at <http://www.nctm.org/change>

00:33:04 Dawn Burgess: The margin of error is larger than the proficient region

00:33:20 Jeff Koenig: The MOE is almost a band width!

00:33:33 Lisa Rogers: The entire proficient range is within the margin of error.

00:33:49 NICOLE RIGELMAN: The MOE is even larger than the Partially Proficient band

00:35:14 Grant Weed: Significant change and change that is statistically significant mean two different things

00:35:52 Pamela Gavina: YES! data walls demoralize students

00:37:08 Allison Stefanski: Any math teacher will tell you that the data our admins want from us are completely irrelevant.

00:37:51 Allison Stefanski: Especially "Student growth" data

00:38:13 Janelle O'Neill: Hello! Janelle from Fairfield, CT (currently relocated to Danvers, MA) @Megan\_Crim I have the same problem! It is a goal of mine to create a "sexy" course that will appeal to college admissions as well so Calculus isn't the only gold standard.

00:39:18 Shaneille Samuels: administration only focus on performance which is driven by data. however it doesn't truly say anything about the students in relation to the mathematics being taught if we really want to know if they are really learning

00:42:44 Allison Hopkins: COMAP has a great unit called Imperfect Testing: Breast Cancer Case Study that goes through this that's free for teachers

00:42:53 Timothy Fischer: Exactly what the words say  
00:44:40 Allison Hopkins: PPV and NPV  
00:46:11 Grant Weed: Tree diagrams work very well for these calculations.  
00:46:22 David Barnes: Welcome Darlene!  
00:46:32 Faith Peddie: Thank you for joining us Darlene!  
00:47:15 Timothy Fischer: Hey Darlene!!!! Glad you made it here  
00:48:51 Baron Hannsz: This assumes a relatively low prevalence of the cancer, and we know a good amount on that number. But with COVID 19 do we have enough data to estimate the prevalence rate?

00:50:20 Grant Weed: No. I don't think we know what the false positive and false negative rates are for Covid 19 yet  
00:50:36 Derrick Thompson: false positive = Type I error  
00:50:45 David Barnes: Yes, Grant.  
00:50:56 Dawn Burgess: For most of the tests, the false negative is because the swabbing technique doesn't grab any virus  
00:51:16 Robyn Headifen: many factors involved in the testing - 1 being testing once infection has passed  
00:51:23 Dawn Burgess: The actual PCR test of the sample has basically zero false negative.  
00:52:14 Dawn Burgess: (My husband is a genetic researcher and his institution is conducting some of the tests)  
00:53:15 Dawn Burgess: (The lab portion of the test also has a basically zero false positive rate if the sample is not contaminated with actual corona virus genetic material  
00:53:39 Cynthia Bryant: Thanks for sharing the info Dawn Burgess.  
00:54:18 Chonda Long: Sarah - Do you have a specific question?  
00:56:09 Dawn Burgess: As teachers, I think we need to be VERY CAREFUL trying to teach our students using data from this pandemic before the emergency is over  
00:56:58 Dawn Burgess: I think we all know how easily students can take away a completely incorrect understanding, even if everything we tell them is correct!  
00:57:09 Grant Weed: Agree with Dawn  
00:57:25 Shaneille Samuels: agreed too  
00:57:38 Allison Hopkins: But: to teach the questions to ask...what do we need to know, what should we be asking about, what should the media be reporting on  
00:57:59 Allison Hopkins: I think those questions and those statistical questions are really important to empower students with so they can ask about situations like this  
00:58:03 Baron Hannsz: On exponential functions.... I am concerned that the media describes the spread of the virus as an exponential curve but the logistic model is better.  
00:58:08 Timothy Fischer: Yes. Students may interpret our data incorrectly and arrive at n incorrect conclusion and then spread these rumors  
00:58:41 Claudia O'Keefe: It would be good, though to teach this about a a previous situation and then how the interpretations changed with more information and how to keep their minds open and still test the data and info at the same time

00:58:43 Danielle McReynolds-Dell: But I think that with careful moderating, we can teach our students to be critical consumers of what they read.

00:58:58 Tori Garrett: Yes! It's all about the delivery: whose eyes don't glaze over when they hear "logistic" anything!

00:59:05 Dawn Burgess: True, Baron. But the exponential part is the emergency.

00:59:36 Grant Weed: Also, there's the risk of minimizing the pandemic and using it in service of math curriculum, which I would argue it not in good taste. Using math and stats to understand the pandemic is more appropriate.

01:00:13 Tori Garrett: yes!

01:00:18 Faith Peddie: @Gabriela B - Do you have a specific question?

01:00:29 Baron Hannsz: I see what you are saying Dawn, but it is inaccurate and if students have a superficial understanding of exponential functions "going to infinity" they will think this means everyone is gonna die. I think more correct mathematics can serve to met the SEL needs of our students and bring some calm

01:00:40 Danielle McReynolds-Dell: It is important to use what is happening around us to help them think more actively. I live in SF and had kids read a ton of articles in order to understand their privilege and to think about what questions had not been asked or explored. They learned to ask great questions and then to seek the data to understand small portions of their questions. They learned that they still need to learn more.

01:01:50 Beth Kobett: I am appreciating this conversation!

01:01:55 Danielle McReynolds-Dell: This year, I stepped away from canned data and gave my kids really messy real data. They really rose to the challenge. Some of the handle data better than my college kids.

01:01:56 Dr Deborah Smith: @Danielle, that's a great way of presenting it. I need to try that

01:03:05 Timothy Fischer: What are some lurking variables here?

01:03:49 Baron Hannsz: I don't think it would "minimize" the pandemic or the seriousness of it if you explain the mechanisms (social distancing, medical research, hygiene, etc) that cause the point of inflection to occur. For AP Stat or Calculus you can explain how the logistic curve and the normal curve are related. I don't think this is using the virus to serve the curriculum but rather using math to make sense of the world.

01:04:22 Baron Hannsz: I also agree wholeheartedly with the studying of inequities on the issue.

01:05:21 Dawn Burgess: Agreed, Baron, I don't worry about minimizing, more about spreading distrust of testing.

01:05:52 Grant Weed: A great question to ask is if we should focus on the difference between the medians or the gap as a percentage.

01:06:19 Dawn Burgess: @Danielle, I agree! I have had my students complete a questionnaire at the beginning of the class that gives us a bunch of categorical and quantitative data, and it's great for use in class.

01:06:30 Dawn Burgess: We have to deal with people who measured in inches instead of cm.

01:06:45 Dawn Burgess: We also have a question, "How old is Mrs. Burgess."

01:07:11 Dawn Burgess: Obviously I get older every year, but I also had my son in class one year and he answered that I was 86 yrs old.

01:07:19 Dawn Burgess: Instant outlier.

01:07:31 Grant Weed: Another question to ask...Based on the models, will

women make more than men someday?

01:07:50 Dawn Burgess: Love this dataset.

01:07:58 Dawn Burgess: @Grant, great question!

01:08:11 Dawn Burgess: Danger of assuming we can extrapolate the linear trend!

01:08:26 Allison Hopkins: Residual plot there

01:08:28 Danielle McReynolds-Dell: @DrDeborah, I took a social justice and equity perspective this year to teach statistics. Every unit had a focus. I accompanied each unit with a plethora of articles from multiple sources to help my students become informed. I also invited guest to come speak. For instance, when we investigated education and funding, I invited some of my colleagues from various schools to speak about what challenges they faced.

01:08:52 Dawn Burgess: @Danielle, do you have a list of those articles you could share?

01:09:00 Dawn Burgess: Or a google doc/ drive folder?

01:09:36 Dr Deborah Smith: Yes, are you able to share. That sounds awesome

01:10:17 Danielle McReynolds-Dell: More than happy to share. Just trying to figure out how to do so. I need to migrate it out of my school drive which prevents sharing with those outside of our institution.

01:10:22 Malrene Naquin: good to see how difference is how fast each is growing. women income increasing more than men,, but has more to catch up..

01:11:09 Dr Deborah Smith: @Danielle, I would gladly share my email address.

01:11:25 Dawn Burgess: I am a gifted and talented specialist. What do we do with gifted kids? We have a 5th grader doing precalculus this year. When would a kid like that step into the Statistics?

01:11:29 Mike Shaughnessy: I know several schools that reorganized to start 9th grade with geometry for all, then stat, and algebra popping up in the second part of year 2! Whatya think!?

01:11:37 Allison Hopkins: Why couldn't that student be doing this now

01:11:43 Grant Weed: Seems difficult to cover all of geometry in only a semester

01:11:52 Malrene Naquin: anyone here teaching preservice teachers?

01:11:54 Danielle McReynolds-Dell: please do so. I will speak to my IT people as school to get some of the restrictions lifted.

01:12:06 Mike Shaughnessy: A whole year of geometry for 9th graders

01:12:09 Shaneille Samuels: yes I teach pre-service teachers

01:12:14 Mike Shaughnessy: It provides a level playing field!

01:12:18 Danielle McReynolds-Dell: @Dawn we should talk. My entire school is filled with students who are gifted and talented. It was founded as a school for the gifted.

01:12:23 Donna Brink: Is there anyone doing a one semester geometry class now?

01:12:36 Melissa Carlson: Change at the HS level will only happen after there is a change at the college level - how do we make a statistics pathway as valuable as an algebra/ calculus pathway?

01:12:53 Jeanine Colwell: NC still does common core math in High school

01:12:56 Dawn Burgess: @Danielle, is there a way I can get in touch with

you?

01:12:56 Faith Peddie: Here is the link to tonight's certificate of participation. Thank you for joining us!  
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01:13:03 Dr Deborah Smith: In Integrated Math I, we only do a quarter of geometry.

01:13:03 Grant Weed: Agree...plus, you need Calculus to major in Statistics

01:13:09 Donna Brink: Also, what are colleges saying about a one semester geometry course

01:13:55 Dr Deborah Smith: @Danielle, my email address is drlyneen@gmail.com. Let me know if you would prefer my work email.

01:14:33 Tancy Wenrich: Wow I love this proposal. I see a lot of freshmen college students placed in college algebra when they've already done precalc in high school. Hopefully it gives them more of an opportunity to understand the context better!

01:14:38 Chonda Long: Here is the certificate of participation -  
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01:14:47 Danielle McReynolds-Dell: @dawn, here is my work email. ddell@nuevaschool.org. please reach out. We can set out a time to speak. We are an integrated program from grades PK-12. We teach statistics at every level for our students.

01:14:51 Faith Peddie: Here is the link to tonight's certificate of participation. Thank you for joining us!  
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01:15:05 Brenda McNeese: Thank you so much.

01:15:06 Beth Kobett: Thank you! This was wonderful!

01:15:10 Grant Weed: Where does Bayesian Reasoning fit into the Statistical Curriculum?

01:15:17 Cynthia Bryant: Thank you both! Great Job!

01:15:18 Tori Garrett: thank you!

01:15:18 Malrene Naquin: Thanks!!

01:15:22 Claudia O'Keefe: Thank you!

01:15:22 Roberta Ludwigsen-Hill: Thank you!

01:15:24 Sara Brown: Thanks Gail and Chris!

01:15:25 Erin Guerrero: thank you!!!!

01:15:28 Rebecca Strom: Thank you!

01:15:30 Tina Hill: Thank you!

01:15:35 Trena Wilkerson: Thank you all! Excellent conversations and thoughtful ideas.

01:15:37 Alina Castillo: Thank you!

01:15:38 Robert Berry: Thank you for a great webinar

01:15:42 Elizabeth Devereaux: Thank you!

01:15:47 Danielle McReynolds-Dell: @DrDeborah here is my work email ddell@nuevaschool.org. I have copied yours down. Please feel free to reach out.

01:16:02 Daniel Irving: Thank you for this incredible webinar and invaluable resources!

01:16:06 Mollie McDermott: Thanks so much!!!



01:16:12 Mary Ochieng: Thank you!

01:16:24 Allison Hopkins: NC State has the "Friday Institute" that has MOOC-EDs with data analysis and stats

01:16:27 Dr Deborah Smith: Thank you! This was great!

01:16:28 Chonda Long: We will be sharing a PDF of their PP tomorrow with the recording

01:16:33 Allison Hopkins: they have a lot of resources

01:16:35 Chonda Long: Here is the certificate of participation - [www.nctm.org/uploadedFiles/Conferences\\_and\\_Professional\\_Development/Webinars\\_and\\_Webcasts/Webcasts/100-Days-Certificate-2020-04-15-final.pdf](http://www.nctm.org/uploadedFiles/Conferences_and_Professional_Development/Webinars_and_Webcasts/Webcasts/100-Days-Certificate-2020-04-15-final.pdf)

01:16:37 Meggan Kenyon: Thank you

01:16:39 Susan Woolley: I love FOCUS and GAISE

01:16:46 dana dulzo: thank you for the presentation and the idea about redesigning the high school math curriculum

01:16:51 Dr Deborah Smith: @Danielle, thank you so much. I will.

01:16:51 Melissa Carlson: I think everyone here values statistics education - how do we challenge our colleagues to broaden their algebra-driven perspective?

01:16:59 Dawn Burgess: @Danielle, I will email you!

01:16:59 Jeff Shih: it seems like those conversations could be continued on myNCTM

01:17:09 Chonda Long: Copy and paste the link into your browser

01:17:09 Brian Odiwuor: thanks for sharing such great ideas

01:17:11 Sara Brown: Census at School <https://ww2.amstat.org/censusatschool/>

01:17:12 Sandra Peirce: Thank you! This was very exciting!

01:17:13 Christine Casiere: I am an EC co-teacher for inclusion math classes and I am having difficulty motivating the EC students. I am concerned they are going fall even farther behind during this virtual learning time.

01:17:15 Faith Peddie: Yes, lets continue this conversation on MyNCTM!

01:17:49 Kelly Ward: And how do we convince administrators to change the math progression?

01:17:49 Malrene Naquin: If anyone teaches preservice teachers please contact me I would like to chat [Marlene.Naquin@usm.edu](mailto:Marlene.Naquin@usm.edu) also would love ideas from folks for activities to share with my pre service students.

01:17:51 Beth Kobett: Great idea!

01:18:07 Dawn Burgess: I think many teachers took statistics and thought it was boring because it was a lecture and not a hands-on class

01:18:18 Chonda Long: Here is the certificate of participation - [www.nctm.org/uploadedFiles/Conferences\\_and\\_Professional\\_Development/Webinars\\_and\\_Webcasts/Webcasts/100-Days-Certificate-2020-04-15-final.pdf](http://www.nctm.org/uploadedFiles/Conferences_and_Professional_Development/Webinars_and_Webcasts/Webcasts/100-Days-Certificate-2020-04-15-final.pdf)

01:18:24 Beth Kobett: These are great conversations to jump start information sharing on MyNCTM

01:18:36 Tammy Crumble: Thank you for the information I see why the Census report is so important

01:18:46 Faith Peddie: Awesome presentation tonight, thank you Gail and Chris!

01:18:47 Dana Lay: Thanks for the information!

01:18:48 Faith Peddie: Here is the link to tonight's certificate of participation. Thank you for joining us!  
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01:18:59 Janelle O'Neill: @Melissa\_Carlson I second your question!

01:19:08 Malrene Naquin: Thanks Gail and Chris

01:19:36 Said Chatir: Thank you! Very informative webinar,

01:19:44 Faith Peddie: Here is the link to tonight's certificate of participation. Thank you for joining us!  
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01:19:50 Shaneille Samuels: thank you for sharing with us today

01:19:58 Sharon Ling: Thank you for this great presentation!

01:20:00 Faith Peddie: @George Here is the link to tonight's certificate of participation. Thank you for joining us!  
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01:20:02 Lorie Huff: Thank you Gail, Chris, Mike, Faith, Chonda, Dave, and NCTM! Great information! Keep mathematics relevant! :)

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01:20:20 Chonda Long: Copy and paste the certificate link

01:20:28 David Barnes: Please share your questions at <https://my.nctm.org/home> and we will have Chris, Gail, and Mike join into answering and discussing them with you.

01:20:40 Mohamed T: Thanks!

01:20:55 Annika Moore: Thank you

01:21:01 Dawn Burgess: Thank you!

01:21:05 Tammy Crumble: Thanks

01:21:06 Stephanie Ruggiero: thank you!

01:21:07 Ada Feliciano: Thanks

01:21:09 Grant Weed: Thank you

01:21:09 Melissa Carlson: Thank you!

01:21:10 Shaneille Samuels: thank you

01:21:10 Timothy Fischer: thank you

01:21:14 Melissa Medici: Thank you!

01:21:14 Pamela Gavina: thank you111

01:21:18 Christine Casiere: Thanks

01:21:20 Mary Dugas: not certificate

01:21:24 Janelle O'Neill: Thank you!

01:21:26 Chonda Long: Thanks!

01:21:42 Daniel Irving: Thank you!

01:21:59 Patrick Montague: Thanks