

Celebrating STEAM in the Museum Space and Beyond

KATHRYN YORK (PRODUCER): Hello, and welcome to the Big And Little Podcast. My name is Kathryn York.

KATHRYN (PRODUCER): As Digital Content Manager at Boston Children's Museum, I'm often working behind the scenes to produce each episode. But today, I'm excited to be your host.

Ahead of the CreatedBy Festival by festival 2022, I invited Neil Tembulkar, director of strategic initiatives, to talk about CreatedBy Festival, the prevalence of STEAM and technology in the museum space, and how to get our kids inspired by STEM. Let's get started.

Hi, Neil. We're so excited to host you on the Big And Little Podcast today, ahead of the fourth annual CreatedBy Festival on October 15.

NEIL TEMBULKAR: Hi, Kathryn. Thanks for letting me borrow your sound waves to talk about the CreatedBy Festival and STEAM. I'm super excited.

KATHRYN: So to start off, can you tell our listeners a little about yourself and your time in informal STEAM education? And maybe, define also what is STEAM.

NEIL: Sure. So my favorite thing to do-- talk about myself. My name is Neil Tembulkar. I've been working at Boston Children's Museum for over 4 years. Before the Museum, I was running a small startup company that taught fun STEAM classes after school and on the weekends. And since you asked STEAM as an acronym, it stands for Science, Technology, Engineering, Art, and Math.

It's possible many listeners know STEM more than they know STEAM. The A for Art was kind of introduced a little bit more recently and organically by the STEAM education movement over the last 10 years. And now, it's kind of become the state where STEM education refers a little bit more to career-based education, and STEAM education kind of is a bit more comprehensive and refers more to even that early learning that the Museum is on top of.

And so in 2018, I joined the Museum as a project manager to grow the work of the young STEAM education team at the time. Now in 2022, countless new exhibits, programs, and a pandemic later, I'm in a new role as director of strategic initiatives, but I'm still managing the annual CreatedBy Festival. And I'm excited to be here and to talk to you about it.

KATHRYN: Yeah, we're really happy that you've taken the lead on CreatedBy Festival and to see it come back in full force for 2022. I'm curious, if you could tell us a little bit more about what is CreatedBy Festival and why it's important to Boston Children's Museum?

NEIL: Yeah, happy to. The CreatedBy Festival used to be the Boston Maker Faire from 2016 to 2018. In 2019, the Museum decided that we wanted to make the event our own. We wanted to keep the format and the show and tell style of the Maker Faire, but we wanted to make it more family facing.

So in 2019, we had an amazing first year of CreatedBy Festival, but then the pandemic hit, and the events again had to kind of refocus on virtual content. This year, we are excited to bring back the in-person events in full force. The CreatedBy Festival is very important to Boston Children's Museum for a lot of different reasons.

One, it gives us a chance to interact with so many other exciting people and organizations, who share our passion of creating experiences of play, wonder, discovery, and mostly for family audiences. And they're aligned with us that way.

It's also an incredible community building experience, where the exhibitors get to network amongst themselves and the families get to be inspired by people, who are within their own neighborhoods. The Museum has been doing a lot of work in STEAM education in the last say, 5 to 10 years. And you can argue that going back over a hundred years, the Museum was started by a group of science teachers. And STEAM has always been kind of baked into everything the Museum's done.

But now that we have an official STEAM team over the last 5 to 10 years, the CreatedBy Festival has kind of become this annual chance for us to flex our metaphorical muscles and tell the Greater Boston area community loudly and proudly that we are a meaningful destination for STEAM learning, especially at an age where the focus is less about grades and defining terms. And instead, it's much more about building curiosity, building confidence, and building a foundation for future learning.

KATHRYN: Yeah, I love what you said about building a foundation. And I think, it really is key to think about STEM and STEAM concepts. It's not just terminology or specific things that people can learn but kind of like a place for people to get inspired and go a little deeper, be creative and explore.

So, are there any particular features or highlights visitors can expect at this year's event?

NEIL: Oh, my gosh, Kathryn. So many. So on October 15, museum visitors can expect to see demonstrations, hands-on activities. You can meet artists, innovators, technologists, scientists. You can kind of experience like a comprehensive tasting menu, I call it, of STEAM showcases. And it's all a part of regular museum admission.

There's no extra fee for it or anything. And all of our exhibits will remain open. So if you want to have a regular museum visit, you can. There'll just be a lot of bonus CreatedBy Festival STEAM content. We have some amazing, key content partners that share our enthusiasm for STEAM. And one is Artisans Asylum.

Artisans Asylum is the biggest makerspace in New England, and they just relocated their facility from Somerville to Boston Proper. And we hope visitors get a glimpse of what makes Artisans Asylum such a hidden gem in the Boston area honestly.

Another content partner is New England First, who will muster their robotics teams from locally and around New England. And those teams span elementary school to high school age. They're going to be at the event to talk about their journey creating robots, showcasing their robots. They'll have also created other presentations and everything around it. So you'll really get an idea to see how their work together as a team.

You're going to be amazed as visitors how 6-year-olds can put together a formal presentation and still look like they're having a ton of fun with it, whereas we're here so used to creating slide decks for work and stuff. And it can be a drag, but really, these 6-year-olds get so into it. And it's really fun to see. And it really goes a long way to provide these near-peer opportunities.

And so our younger audiences-- a 5-year-old can see a 7-year-old that's putting on a presentation.

They've built a robot. And that 5-year-olds is going to think, oh wow, I can do that in 2 years myself. That's so cool.

Another key content partner I want to make sure I mention is Brandeis MakerLab. They're going to be bringing 3D scanning rig. They're going to be bringing video drone technology, really to show how they are involved with Brandeis University's archeology digs. They use a lot of that cool tech within that realm. These are just three of, at least 30 exhibitor groups. They'll be at the museum on the 15th. Visitors can expect to make their own recycled art. They can mess around with circuits. They can design 3D models.

They can talk to a humanoid robot. They can look at specimens in a microscope. There's just so much cool stuff, so.

KATHRYN: Wow. Yeah, I love the variety there. And also the tie with local organizations, companies. That piece, I think, is really key to engaging our community fully.

This year's CreatedBy Festival really does kick off Mass STEM Week, which is October 17 through the 21st. And Mass STEM Week was started by the governor's office years ago, but it was mostly targeting middle school and high schoolers. As a Children's Museum, our target audience is a little bit younger. And so I was wondering, how is Boston Children's Museum getting involved to engage our younger kids?

NEIL: You know, it's funny. Boston Children's Museum kind of just assertively inserted ourselves into Mass STEM Week years ago. We kind of noticed that the focus was on older children. And we thought, yeah, we're going to celebrate Mass STEM Week too, but in our own way.

So instead of the traditional STEM Week approach of professional development and curriculum deployment in schools, we, instead, are inviting students and families to the museum to engage in meaningful hands on STEAM workshops and experiences. Again, our goal is to get these children excited, to help them find something they may want to, or further to find something they might care about, get excited about.

2019. There was a third grader who did a soldering workshop at the Museum during STEM Week. That same third grader, who's now a fifth or sixth grader, has been coming to the museum many times since then, and always finds a staff member, and always reminds us the staff member that he loved that soldering workshop that he did in October 2019.

And he started doing soldering projects at home. He made his own clock that he-- his parents pulled up a photo of it on their phone to show us. And now, he said he wants to be a YouTuber. And as soon as his parents are cool with it, he wants to help others start their own projects by having YouTube tutorials. And so it's stuff like that really kind of makes me proud of the type of work we get to do. And it kind of reminds me that this type of an endeavor is a gift to do this kind of work.

And a Mass STEM Week that way, it just opens doors for so many others to find their own touch points with STEM and STEAM and kind of see, not only what they're capable of, but what they're excited about. And there's no reason why that has to wait till middle school, right? So we and the Museum are definitely doing what we can to kind of light that spark at an earlier age.

KATHRYN: Yeah, for sure. And that little anecdote right there is so key, where this festival is all about finding these moments, where you're so excited that you do have to take a moment to be like, whoa. And to see that that can extend even further is so powerful.

NEIL: Oh, yeah, totally. And the magic and the spectacle of that event is something that we are trying to make as accessible as possible. So we're going to be providing some free tickets to the community for this event. We're also going to be doing some free virtual events that I'll talk about a little bit later. I'm sure.

But this event is sort of meant to display what is accessible now. So, of course, there are going to be 3D printers and things that perhaps, a 6-years-old can't dabble in. But just because they can't buy and build their own 3D printer doesn't mean they can't learn about 3D design. Just because they can't build a robot themselves yet doesn't mean they can't give a robot a few commands, so that they can learn that-- hey, I've actually tried some coding concepts here.

And I've actually written a code and the robot has followed that code. And that's something that as-- I think there's too much of this notion that, hey, you know what? Like I as a grown up have to be a software engineer to teach my kid about it, or I have to be a scientist to foster science learning.

And so an event like this does go a long way to try and dispel some of those things and to make it as accessible as possible, because the last 5 to 10 years, as a nation, we've kind of noticed a bit of this division along technology. And that's just one dimension. But we've kind of noticed that it's like point of access, and there's this understanding that, oh, you know what? Like everyone has keys to success as long as they learn Python and move to a Coast and live this template life.

It doesn't have to be that way. It doesn't have to be just that one modality. It can be so many different approaches towards STEM and STEAM. And the A in the part of it that we're most interested in is getting these children to think about what inspires them what gets them thinking about not just what they're good at but also what they're excited about.

KATHRYN: Oh, I think that inspiration is definitely one of the key pieces of CreatedBy, and also just of the Museum, and a lot of the learning that we're really trying to impart with visitors of all ages.

For those who are unable to attend or might just want to delve a little deeper into STEM and STEAM concepts, what are some other ways that people could get involved after the festival?

NEIL: Yeah, there are a number of ways. So the Museum is hosting some virtual live events. So these will happen online over Zoom. They are free and are happening throughout Mass STEM Week from October 17 to 21st. At 10:00 AM each day, you'll find a different 45-minute Zoom event that you can join. And you can join from a household, from a classroom.

It could be a demonstration of how to use TinkerCad or some other 3D design. It could be how you can build a glider with household materials. These are not things that require you to buy a software or to go and fill a shopping cart full of materials.

These are meant to be things that you can either follow along and then replicate really easily later, or even follow along during the session. Learn something. Try something step by step with the event.

You could also just visit the Massachusetts STEM Week website, which is kind of outside the Museum's direct jurisdiction, right? But you can learn a lot more about various free events happening in the Boston community throughout Massachusetts STEM Week. There's all these career events and talks and hands-on workshops. And there's so many different accessible ways where you can participate.

KATHRYN: Right. Yeah, there is truly a wealth of knowledge here in the Boston area and Massachusetts overall. And it's great that we're able to stay so connected and share that with everyone to make it more accessible.

In talking with you today, Neil, and all about CreatedBy Festival, STEAM, it's clear that you're passionate about all things STEM and STEAM. And I wanted to take a second and Zoom out of it. What do you think about the role of technology and innovation and what it has to play at Children's museums?

NEIL: That's an important question. And I think it's a very sort of relevant question right now because of how much of the last couple of years have been spent by people in their homes, on their devices. People have gotten more connected to the technology at their fingertips, more by necessity than by choice. And technology-- some people can argue, it drives people further apart. Others can argue it connects people together. And within the museum space, and especially the Children's Museum space, our major kind of currency that we have with the community is trust. That trust is something that the museums don't take lightly-- Boston Children's Museum doesn't take lightly.

So when it comes to how we integrate technology and innovation into experiences visitors have with us, that is going to be very carefully thought out. So if you've been to Boston Children's Museum recently, you'll actually go through the exhibits, and you'll think, hmm, like I don't actually see a lot of big T technology here as people might say. And that's absolutely correct. And that's very intentional for us. More than stewards of technology we are stewards of children, families, resources and education. And for that reason, everything we do starts from the roots being that of children and families. And then whatever grows from those roots might integrate technology in some way.

And it could be a program because we're noticing how prevalent something like coding and logic is, and how everyone is using this block lead technology, whether it's Scratch coding, or LEGO Robotics, or 3D modeling, and all the free open source stuff to learn those concepts. If there's a way to integrate technology into that meaningfully, in a way which has appropriate and well thought out touch points, then that's the way we're going to approach it.

KATHRYN: Yeah, absolutely. I think that what you said there in terms of how to integrate technology mindfully is really important. So as a Children's Museum, parents and families, and caregivers, there are a lot of our key audiences. For the parents out there who are hoping to encourage and inspire their kids to engage with STEM concepts, what are some good resources, or what are some tips or advice you have?

NEIL: So I'll start by sharing that Boston Children's Museum's website has a wealth of resources. Beyond the Chalkboard is one. 100 Ways to Play is another. We have all these sort of indices and resources of activities you can do from home. We created a whole video library and activity archive during the pandemic which you can still see.

Beyond that though taking a step back from direct resources, I want to first talk to you the grown-up or caregiver, or parent, grandparent, and remind you that you yourself are much more capable of fostering their discovery, learning and educational experiences at this elementary and preschool age. You are much more capable of it than you think you are.

You don't have to be a scientist to nurture learning of science. You don't have to be a technologist. You don't have to be a computer software expert. You just have to make sure that at these early ages, you are fostering curiosity. You're getting them to ask questions. You're getting them to ask follow-up questions.

If they have a question for you, you are trying to find out the answer. If you don't know the answer, we don't just leave it at that. We try and explore and discover what that answer might be. In order for the child to feel confident in learning, the grown-up has to be confident too.

So even if you don't feel like you are-- what I don't want grown-ups to do is-- I hear this all the time in the museum was that, oh, you know, math was my worst subject in school, so I'm going to let you handle this one, or I was never good at science because that type of an approach is only going to further entrench some children in the negative thoughts they might already have about the way they can learn and approach the world.

And really for you as a grown-up and a caregiver for you, you have to exude confidence, and you have to foster that confidence in yourself before you can foster it in a child. And you have to foster curiosity. You don't have to know what photosynthesis is. You just have to know that they can get their hands dirty and dirt. And they have to learn that sunlight and water help things grow. And that's really what it takes.

You don't really need to be an expert. And you need to be making sure that in building this curiosity and confidence, you are laying the groundwork for that foundational learning for your child and your children

going forward. That's not something which I think grown-ups think about enough-- is the role that they play in early learning, and discovery, and play, and just observing the world around them. That's half of what learning science, STEAM is, especially at this pre-K age.

KATHRYN: Yeah, I'm really glad that you touched on that piece about confidence, and especially in relationship with STEM and math, because I think for a lot of adults and kids out there, it can be a bit intimidating at first when it wasn't your strongest subject, or it's not something that you use every day, and you don't think about.

It's important to be confident that you, yourself, can help inspire that learning. And even just sharing that you're passionate about learning and getting your kids inspired is-- that's enough.

NEIL: Exactly.

KATHRYN: And for the listeners out there who want to learn more about CreatedBy Festival, would you mind sharing the website again?

NEIL: Yeah, sure. So the website is-- you can go to createdbyfestival.org. You can also go to the Boston Children's Museum website, which is [Bostonchildrensmuseum.org](https://bostonchildrensmuseum.org). And you'll see a link to the CreatedBy Festival website there. You can purchase tickets either for the morning or the afternoon. We are still doing a little bit of a post pandemic limited capacity, so get your tickets while you can.

You can also, at that website, sign up for any of the free virtual live events happening throughout Massachusetts STEM Week, or you can find any of the other hundreds of ways to engage with the Museum, either by visiting us. You can check out the Museum's calendar to see day to day updates on what programs and events are happening, or beyond the walls of the Museum like the resources I mentioned earlier.

There's just so many ways to engage with Boston Children's Museum. And we can't wait for the event on the 15th, and we hope to see you there. I mean, we're just expecting it to be a ton of fun. And every year, this event just gets better and better. And we hope you can come be a part of it this year.

KATHRYN: Definitely. Yeah, and I hope all our listeners can make some time to come out, either in CreatedBy Festival or on another time and take advantage of all the resources that are out there.

Thank you again for your time today, Neil. And we'll hope to see you soon.

NEIL: Thanks, Kathryn. You're the best. And thanks for the opportunity.

KATHRYN: Thanks for listening to today's episode of the Big And Little Podcast. And Thank you to MathWorks, Autodesk, Bright Horizons, MEFA Ufund, and Alexandria Real Estate for sponsoring the CreatedBy Festival.

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