Megan
Well hello everyone thanks for tuning in today. My name is Megan I am part of the marketing team here at PCS Edventures. And today I am joined by Michelle Victor, she is our director of STEM development.

Today we want to thank you guys for joining in, tuning in to our Out-of-the-box STEM/STEAM Programming.

As always before we kind of jump into today, I really want to go over the agenda just to give a brief rundown of things we'll talk about things we'll dive into. We'll start off with a little bit about who PCS Edventures is, we'll jump into Enrichment Programs, these beautiful little curriculums here. We'll talk a little bit about our Enrichment Programs that we developed here in house to kind of help guide you through everything, and then of course we'll do a little wrap-up if you have any questions just let us know.

So a little bit about who PCS Edventures is. PCS started off as Pat's Computer School. We've been around since about 1980s. Originally we started off as an after-school computer program and then we kind of grew to a network of experiential learning centers. We are really about STEM learning and instilling that passion in STEM. You can find us in most states and all over the world as well.

Our products, really exciting stuff. So we've got four great lines, we have our BrickLAB, our Enrichment Programs, which is what we will highlight today, our Discover Series and our Drones. We provide those turn-key kits that are super easy to implement. We have makerspace materials they are great for STEM education and career exploration. And then of course, as always, we do provide training and support for all educators, facilitators, you name it. We're here to help you guys.

Our Customers, this is kind of a big one. We do create products and services for K through 12 classrooms, after-school and summer programs, maker spaces, libraries.

So a little bit--we're gonna dive in today with Enrichment Programs. Michelle I know that Enrichment Programs are the love of your life. Can you tell me a little bit about who were--who are they developed for, a little bit about their program structure, kind of like an insight of what these bad boys are.

Michelle
Yeah absolutely, so I have been the director of STEM development and PCS Edventures for going on five years now so it's been really cool for me to see a lot of these programs get developed. And so as we're developing them, we're always thinking about where they're gonna be used.

So we started developing these as part of a summer school program. We worked with sites that had programming for their math and their reading and, you know, science, social studies, their core academics. But they wanted to have something that was enrichment and valuable but also really fun and engaging for all the students that were attending those programs. So that's how we really understand enrichment. We're supplementing all of that core academics, but also have that space to explore things that are really interesting to kids and help them develop what their passions might be.

Megan
Nice, I know that with Enrichment Programs we try to really kind of get all the work out for educators and those implementing. It's great, because really anyone can implement these programs, right? You don't have to be a certified teacher, you could be a volunteer, even a parent if need be.

Michelle
Yes. And I know, before I worked at PCS, I worked in the classroom but also worked in a variety of afterschool settings. You know, summer camps, or the 21st CCLC program or even tutoring. So I always think about it that we get to develop here the sort of resources I wish I'd had. You know that if you have 15 minutes to prep and kids are coming in you want something that's really high quality so that you can provide a really good experience.

Megan
Same, I know when I worked at the YMCA, I was an after-school leader. And so a lot of times when we don't have staff and you have to take multiple groups at once it can be a little challenging to really kind of create something that really fits for a bunch of grades. So you have to adapt what you have going on, even on rainy days sometimes you can– just have to think really quickly on your feet. So I think after I got to learn a lot about our programs it's kind of nice it's like, dang, these would have been so great for me, right. I could easily just open the book and be like, "okay this is what we'll do today."

Which is nice because I know a lot of these programs, they're structured and everything's kind of laid out. Tell me a little bit about, maybe, the lesson structures. I think that would be kind of good to go over and--what exactly these are laid out.

Michelle
Yeah, so all of our Enrichment Programs are structured the same, so they all have 12 one-hour lessons. Each of those lessons follow a really similar structure, to try to give you everything that you would need to know at a glance to be ready to teach that lesson. So some of the things you can see on the slides here, I mean, right off the bat, we tell you these are the different areas of STEAM that are being addressed.

So in this example, the monkey, right, you're tying in life sciences or looking at animal adaptations. You've also got some engineering design because you're doing some building with the BrickLAB. And then there's also some math integrated.

So you've immediately got those three areas integrated, and then it tells you right away, "okay here's how long it takes, here's what you need, here's a quick break down to the schedule." So that you can then jump in when you get to the step-by-step instructions really quickly, understand "okay, here's what this is gonna look like."

Megan
Nice, and I know a lot of times we--it's built in where these lessons can be adapted. There's extensions available, correct? So if you wanted to, you could further them.

Michelle
Yes, so we say 12+ hours, so yes, those core lessons definitely could be completed in an hour. If you only have so much time, it's great, that experience works on its own. But if you have extra time, there are all these awesome extensions and a lot of those might integrate more math or more English Language Arts if you wanted a really strong connection.

Megan
As we kind of jump into more product spotlights, we're gonna break them down. We've kind of really developed this pyramid to kind of help guide you in programs and what you're looking for, maybe.

So in our first tier, we're really looking at programs that the materials are reusable, they're extendable, a lot of these programs I think they're student-led, there's a lot of independence there, right?

Michelle
Yes and we really developed this because we know the people using our products have a huge range of backgrounds. I mean, it's everything from lifetime certified teachers to, like you said, parent volunteers or teenagers where this is their first job.

So we really wanted to break down, depending on the staff that you're working with and the experience that you have. Different products bring different things to the table. So as we go through we'll kind of highlight which ones, what do we mean by these different tiers.

Megan
And then of course the second tier of products that kind of require a little bit more of restocking of the materials. Activities, you have a little mix of more student-led activities versus a little bit more of a teacher facilitation. They get more complex but kind of involvement will vary based on the tier that we're working on.

So as we dive in we'll jump first into our tier one programs, very exciting. And I think we'll kick this one off with our BrickLAB Zoo.

BrickLAB Zoo, to my understanding grades 1-3. These ones kind of cover life science, talk a little bit about engineering design, as we were kind of talking about briefly with lesson structures. You've got math connections and English Language Arts connections.

Can you tell me a little bit about program highlights in this one?

Michelle
Yeah, so BrickLAB Zoo is one of our classic, most popular titles. It's been around for a long time. So each day you build a different animal, as you can see here. So there are a lot of favorites, there's an elephant, a puma, a yak which is my favorite, and then of course the science.

There's, you talk about okay how is that animal adapted? And, you know, the yak has really thick fur or the Puma has really big paws to be quiet. Which for the life sciences bringing you in this core idea.

So the other awesome thing about BrickLAB Zoo, it comes with our PCS BrickLAB. These are similar to Legos, they're Lego compatible, but it's a unique set that works with all of the activities that come with the curriculum.

So this is 100% reusable, no restocking, you can wash the bricks, so you can use it, and then use other ideas that you might come up with.

Megan
I know that's a really big thing too, the reusability. It's like, how far can this take me? Like, what exactly am I getting out of this? And I know that's a big thing that we often times hear from educators. It's like if I'm gonna make an investment I want to know how far this is gonna take me. Like how much can my materials stand, especially durability.

When it comes to kids, sometimes there's not the gentlest and I can pertain to this, especially my younger ones, they can kind of get a little, you know. So it's great that you can clean them and reuse them, adapt them. So that's really great.

Speaking of students, can you tell me a little about student takeaways? What can kind of students expect from this?

Michelle
So as students are going through this, we can kind of walk through one example lesson. We looked a little bit at the monkey before. So in the monkey lesson what this would look like is at

the beginning, naturally, I you're going to talk about monkeys. You know, so, what did monkeys do? What do they like? They're really social, they work in groups.

And so to adapt that to the age-level to talk about okay how does that maybe connect to where they live? So monkeys live in the jungle, they live in trees. So you're making that connection between ecosystems and adaptations. And then, of course, you get to talk about monkeys and how awesome they are. So a high-interest subject.

And then you build the monkey. So that on its own it is a really good engineering design activity. You're building confidence with bricks. A lot of kids just naturally love building with bricks but, if students don't have them at home or haven't done that before it's a really cool opportunity for them to get that experience.

Megan
Hands-on.

Michelle
Yes. And going through that, I mean, there's so much integrated math in building. So even though you're following step-by-step instructions, I mean, that is not an easy task. You're having to look at a visual and recreate it. You're having to count out your bricks and look at the size. So there's so much good learning that comes just from that process.

If you want to do more open-ended engineering, with the monkey you have kids build a tree that the monkey can hang on. Which also is not easy, right, there's another challenge. And it has to balance.

There's a math activity where you draw a graph of the rain forest where the monkeys live. Or a English Language Arts activity where you write to your monkey pen pal and tell him about your environment.

Megan
Hey George, today I had for lunch a macaroni and cheese.

Michelle
Right! It's adorable, it's creative writing. So there's just a bunch of resources jammed into one very easy to implement lesson.

Megan
Very fun, alrighty, moving on to our next product. So we have BrickLAB Famous Architecture Around the World.

So BrickLAB Famous Architecture, really caters for that 4-6 grade level. It covers subject targets like technology, engineering design, math connections, English Language Arts connections, and

then social studies and history. So this one has a nice round-- you kind of get a little bit of everything it seems like.

Program highlights, what can we kind of see from this one?

Michelle
One of the things I love about this, like we talked about before, if you already had a full BrickLAB, you could use that same set of materials for this curriculum. So if you had you know multiple age levels at your site, these two can pair together really well.

This one, instead of doing an animal each day, you build a different famous structure each day. So you kind of get to travel the world, learn about the history and the geography, and then do some pretty advanced, because it's older students, builds that are really fun.

Megan
I know, I think I've seen one of the builds as the Eiffel Towe, El Castillo, so some nice little variety of builds.

I know when I was trying to build, I thought, like you were saying, it gets kind of tricky as you follow the directions and kind of build up. But there's still that learning there, and kind of like figuring it out.

Michelle
Yes, and you feel accomplished when you're done! That's another takeaway for students, is that, we always recommend students build in pairs. So you're getting that collaboration, you have that support, I mean, partially because it's a lot more fun in pairs, but it teaches you to work together and problem-solve, so I think that's another really good takeaway.

Megan
I know that a lot of times as you're kind of moving through the days, would you say that the projects get a little bit more complex? So you start a little easier and then build out towards that.

Michelle
Absolutely, so the earlier ones like you mentioned, El Castillo is a really cool Mayan structure that's still in Mexico today. So that one is one of the first ones. One of the ones by the end, they build the Empire State Building, which is fun and it's definitely a larger build, but it again follows a really similar structure to Zoo.

One cool thing in Famous Architecture I love is each beginning has kind of a read-aloud emersion story to connect to the place and the time when it was built. So it really puts you there and it sets the scene for what you'll kind of build and expect. Right, like, I didn't know before we wrote this that the Empire State Building was built during the Great Depression and it was really

this symbol for people that were unemployed of hope and progress and so it kind of immerses you and what was it like in New York in the 1920's-30's. So that one's really fun.

Megan
Well that kind of wraps up our BrickLAB Famous Architecture. Moving on to our next product.

So Claymation. So this is gonna be the last product in our first tier. And this one is gonna be catered more towards grades 4-8. It talks a little bit about technology and it also covers art and STEAM. So I know I'm really excited to hear about this one. Can tell me about program highlights?

Michelle
Yes, so this one is also one of our very most popular. What I love about Claymation is that it's obviously very creative, so at the end of the camp each student group gets to create their own claymation stop-motion film. And then the early lessons walk you through really step-by-step learning how to use the camera, learning how to use the software.

There are some really fun intro videos that you can make. A lot of them revolve around a red blob, just a really simple clay character. But then that evolves to how do you create more complex characters. And then ultimately integrate the sound and the audio and the storyboard to create your own film.

Megan
Speaking of clay, I know when I first saw Claymation I was kind of hesitant because I think of clay, clay can dry very quickly. Like even play dough, for instance it, it's hard to get out, it gets really dry, it's hard to reuse. So I know with Claymation, I found out that the clay itself actually can be reused multiple times.

Michelle
Yes so we source really high quality clay for that very reason, that you do need it, you know, when you deconstruct it back to its colors, to be able to be reused. So eventually at some point, yes, you may need to add a little bit of fresh clay. But overall, yes this one definitely another that you could use over and over.

Megan
When I was looking through these, I had no idea what stop-- in a nutshell I knew what stop-animation was--I didn't realize how much work actually goes behind it. So it's a lot of very hands-on, it's very tedious-- it requires a lot of patience. And for students in this grade level, I think it's really fun because they get to kind of basically start like the very beginning and then create this amazing kind of stop-motion.
I know that we've done fun little videos here at PCS, we have a cute little cat, we named him Ralph. That's kind of fun seeing him get constructed and then having him in an actual video. So

it's kind of fun picturing students getting to do this and really getting involved in technology, getting involved in stop-motion.

Michelle
And like you said, there's that perseverance, there's the project management which is such a real-world skill. And you get that awesome payoff at the end.

Megan
Moving on to our Tier 2, so that kind of covers our first tier. We talked a little bit about BrickLAB Zoo for grades one through three. We talked about Famous Architecture, and then we wrapped it up with Claymation.

So now we're gonna move on to our second tier of programs. And we will kick this one off with our Unleash Your Wild Side, such a fun one.

Unleash Your Wild Side is for grades 1-3, and it really talks about covers life science, art/STEAM, it has those English language arts connections. So program highlights, what can you tell me about this one?

Michelle
So this one is similar to BrickLAB Zoo in that it also looks at different ecosystems. This one focuses more on habitats and a little bit less on the animals.

Because it's tier two, we differentiated this in thinking there is some restocking. So this one has a ton of different arts and crafts projects. We really wanted that creativity and STEAM. So while they are very easy to implement, you will need to be able to get a little more paper or paint to continue to reuse it.

In terms of the ease of implementation though, the curriculum structure is really similar. So in every single day, the other thing I love about this one, is there's a physical activity first. So on the turtle day, which is one of my favorites, there's a really fun game at the beginning where kids are running back and forth, they have to work together to evade the sharks, and then you come in and start talking about the ocean as a habitat. And then eventually do your watercolor turtle.

Megan
I think it's nice to really talk about how the ease of implementation again like with all Enrichment Programs. Anyone really could implement these. I mean if I were to open it, I could flip to any day, like I don't necessarily have to start the first day right? I could really start anywhere inside the sequence.

Michelle

Yes, and that's a great point. Each one of these stands alone. So if you're for example an outreach program, and you're maybe hitting a school only once, you could totally pick just one day.

And this is another thing that you mentioned too, we include all the supplies for up to 30 students. And then we try to set it up so that it's pretty easily accessible materials. You can get a refill kit from us or if you have access to your own you could continue to reuse it.

Megan
Student takeaways? You get to physically take away a bunch of cool art projects. I know the masks are really fun, they do create masks right?

Michelle
They create masks, they use watercolors, they do a really cool finger paint where they make dirt paint and talk about animals that live underground. There's a lot of really creative ones.

Obviously you're getting those life science connections, you're getting some built in geography, looking at the takeaways around the world. And then you're just getting a chance to be creative, develop your craft skills. So I think there's a lot integrated into this one.

Megan
Alrighty, and then moving on to our next program in our second tier. So Eggs-traordinary Physics. That one's a mouthful just slightly, kind of a play on words which is kind of fun.

Eggs-traordinary Physics is for students in grades 6-8, and it covers physical science as well as engineering design as subject targets.

Program highlights, Michelle, what can we say about this one?

Michelle
So this one comes with a really unique set of materials. They're custom-made in Montana and they're these cool these disc boards that you can see there, and then these custom-made stone eggs.

And so this was initially developed to be a team-building activity. And so the simplest version of the game is you have everyone kind of stand around the board and hold it, and then it's a game of perpetual motion to try to keep the egg spinning. So you spin it, and then I think the world record is some crazy number of hours that some classroom did.

But it's cool so I mean you can have that to use forever. But then obviously you can bring in the STEM to talk about okay why is the egg spinning? or how does a plastic egg compared to a steel egg? What happens if you cover the whole board in aluminum foil? or you know introduce

friction? So it's a lot of egg-themed physics, right, but also a lot of collaboration and team-building.

Megan
I think when I had the chance to actually see the eggs and the boards they're yeah they're pretty solid especially--I mean I was a little shocked.

When you think about a plastic egg, oftentimes I mean I thought of Easter. And they're very like-- they can be very flimsy, and then when you compare the two it's like wow this is very very well made. They can withstand quite a bit as well.

I thought it was really fun, I mean as you're kind of seeing the theme there's I mean they're just--they're so hands-on. They're interactive, it kind of makes learning STEM and STEAM very without even thinking about it, like, how? what? this is actually STEM? this is STEAM? but I didn't realize it. Because they're fun, I mean you really kind of get lost in the activity. It's interactive, it's hands-on, students want to learn more. They want to get more involved.

It's kind of almost like, I know we've heard lots of times, students are like "We have to stop? Why?" I think it's always like relieving, it's always my security, my students want to learn more this is great, like I want to teach you more, please let me do this.

Michelle
Adults too, this is one of my favorites if we're at a conference or something and have one out, it's just an immediately engaging activity that brings people together.

Megan
People kind of migrate to it, too. Student Takeaways?

Michelle
Oh gosh obviously a lot of physics, but the other thing I love about this one is there's a lot of integrated engineering. So about half of the activities use the egg game but the other half do other sorts of activities.

So one of them for example is to build a catapult that will launch an egg. So there's a lot I think that's integrated there that's obviously your problem-solving, but again I think the thing I love most about this is that team-building. It'd be awesome to do at the beginning of a program if new kids are coming together.

Megan
Alright and then last but not least our tier 3 programs. So our Tier three programs, you're gonna kick this one off with Ready Set Code.

Ready Set Code is really geared for students in grades four through eight. It really dives into technology, robotics and coding, and math connections. All kind of around drones and UAV Tech which is really fun.

Program highlights, I'm really excited to hear these ones.

Michelle

Yes, so this was an anticipated product, it's been out for a while, we've had really positive feedback. We categorize it as Tier three because using the drone technology does take a little more preparation. So you have some apps that you need to download, you need to familiarize yourself with the technology, but we really love them because the payoff for your students is so huge.

They get the opportunity to interact with these small mini drones that are really safe to fly inside, and then in Ready Set Code they get to use an app to code autonomous flight missions.

Megan

Can you tell me a little bit about autonomous-- I mean this is kind of funny, I wasn't quite sure exactly what that was, so can you tell me a little bit about that.

Michelle

Yeah so in the real world you can fly a drone either manually you know, so if you've ever gotten one of the toy ones and flown around your living room or crashed it which is what I've done, that would be you know manual piloting

But a lot of real-world drones are flown basically by computers. So this is where you know you put all of your code in, and in Ready Set Code it's all drag-and-drop, really accessible, and then you hit launch and the drone flies itself.

Megan

Which is crazy to think, I mean, when you think about 4-8 grade students, integrating the drone tech, like this is very very great-- materials, like the drones. They're state-of-the-art, they're extendable equipment, you can really use them with different curriculums, I mean there's a lot that you can do.

I know a lot of classrooms are starting to adapt more of this technology and I think students love them. I think it's really great, especially on smaller scale. I mean, when I first saw the drone it's perfect I mean it's very pocket-sized, and it's not this huge thing.

We do have those options for bigger drones right well, but for for 4-8 graders, I think it's great that they kind of get to experience this.

Michelle

And you're so right I mean, there's so many ways for kids to learn code now, which is awesome, but the drones are so motivating and immediately engaging.

Megan
Speaking of the mini drones, can you tell me a little bit about our curriculums that we have available for them? So we have one great drone and then we have multiple curriculums, correct?

Michelle
So just like BrickLAB, where once you have the BrickLAB you can use it with all these different titles, the same is true for the drones and Ready Set Code. So this one really focuses on the autonomous programming, but we have one, Ready Set Drone, that is all the manual piloting and learning about the real world uses of drones and the science behind the physics of flight.

And our newest one that we really love is the Drone Designers, which is using the same drones but basically creating performance art with the drones. You have to create costumes, you're coding them just like you do in Ready Set Code but coding them to perform to a piece of music.

Megan
So it really kind of ties it all together, so it's like you learn basics, you dive into computer science, and then with our Drone Designers you explore careers so it has those real world connections.

For instructors who maybe, or educators who've never implemented drone tech in their classroom, like what can they kind of expect from that and the ease of implementation for them?

Michelle
That's a really good point, so using the drones, they are obviously really engaging, but it does take a lot of front-loading to really establish those routines to use the drones productively.

So with the Tier three ones, you definitely as the instructor you're gonna be involved, you're gonna be leading a discussion, you're gonna be modeling things for your students and then you're gonna be actively going around coaching your students as they're working.

So still really well scaffolded, really easy for anybody that has never used this technology before, but definitely takes more involvement and say, you know, getting out a tub of bricks and then the kids can pretty much do it themselves.

Megan
I know product development has spent a lot of time really thinking through what students can expect, what educators can expect.

I think it's great kind of being a part of the team and really seeing the moving parts of how these things come together. I think they're great resources, there's a lot of reusability to them, and there's a lot of options. I mean they cover a variety of subjects, a variety of topics, so there's really a program fit for some need. They cater to a lot, I would say.

Michelle
We've got all the different grade levels, all the different subjects. And I think you bring up a good point too, that for all different instructional approaches or wherever you're at, it can also really be a tool for building the capacity of your team.

I think BrickLAB is totally where I would start, but then as you get into the upper tiers, it also brings all these awesome takeaways for your students, but then it also opens up what you're able to do as your team, and what you're bringing to your students in STEM.

Megan
I mean Michelle you're an abundance of knowledge when it comes to our Enrichment Programs. It's kind of nice to have that resource, you really get to see the thought process behind these.

Like we were kind of saying earlier, our pyramid today, we did talk about six products but we do have a bunch more learning solutions available. Tier one of course we talked about BrickLAB Zoo, we've covered a little bit about our Famous Architecture as well as Claymation. And tier two, we talked more in depth about our Unleash Your Wild Side, and then Eggs-traordinary Physics. And at the very top of our pyramid we did talk about Ready Set Code. So kind of an overview of all of our great products.

Our pyramid today, of course, that will be available to you if you want to kind of take an in-depth look. And as we're kind of talking about-- there are programs available, a variety for different grades, different subjects. If you're a math teacher, great math products... and we've kind of laid those out for you folks as well so take a look.

Each tier has very specific programs that Michelle and our team is thoughtfully considered for each level. Other than that, that kind of wraps up our Out-of-the-box STEM/STEAM Programming today. If you folks have any questions let us know. We have great resources available with our pyramid. We'll be giving out curriculum samples for our six products that you do see here today so if you want to kind of see more in-depth what that lesson may look like for that date we've got those available for you folks.

But other than that, Michelle, I want to thank you for sharing your knowledge with us today, and if you folks have any questions let us know.

Michelle
Thanks so much for joining us.