Anne Carey - Using the Scientific Method to Teach Art Transcript

- Hi, I'm Anne. Thanks so much for joining me today. I'm super excited to have you join my session where we'll be exploring how creativity and curiosity can combine through art and science. Specifically, we'll be exploring how you can add the scientific method into your next art project in your classroom. Before we jump into the fun I just wanna tell you a little bit about myself. Again, I'm Anne. I'm the creative brain behind Left Brain Craft Brain, a hands on activity blog for kids. I'm also the author of "STEAM Explorers," a monthly digital ebook series that helps kids explore the world around them through hands on science, tech, engineering, art, and math. I love doing things like building rockets, exploring my favorite artists, making slime change color, painting with fun things, which is what we're gonna be doing today. As well as experimenting with science. I have the good fortune of combining my MIT chemical engineering degree with my limitless passion for crafting into a very fun career where I get to help kids explore their creativity, get innovative and learn something about the world around them. So let's get started. Today we're talking about the scientific method and how it can make creative projects even more fun and help kids learn a little bit along the way too. So what exactly is the scientific method? The scientific method is a systematic process that helps scientists observe things in the world, answer questions, and solve problems. But you know what, it's not just for scientists. The scientific method can help kids and adults like you and me give ourselves a framework for critical thinking and help us solve problems. Not just the science ones. I actually like to compare the scientific method to the word wonder. I wonder why is the sky blue or why is red paint so vibrant? I wonder, right? So wonder is a word filled with curiosity. It's filled with questions and it's also filled with an invitation to answer that question, to explore the world and find the solution. So today, for example, I'm gonna tell you a little bit about something I wondered about the other day because I'm not just an author and an engineer. I'm also a mom and a Girl Scout troop leader. And the other day, as I unloaded a garage full of cookie boxes for cookie season, I wondered, hmm, what is my favorite variety of cookie? And I actually wanted to figure it out. So I used the scientific method to help me figure that out. Because there's a bunch of steps that could help me think through a question that I wonder about. So first, I did, I observed. I observed, wow that's a lot of cookies. There's a lot of varieties. How do I know what I like best? And then I asked a question. I asked, what's my favorite cookie? Then I did a little research. I talked to my friends. What's your favorite? "Oh, anything with chocolate," I heard. I looked on internet. There's definitely some favorites out there, right? Then I made a hypothesis and a hypothesis is basically an answer to your question. Your best guess version answer to that question. So my best guess was I like the one with the caramel and coconut and chocolate 'cause mm, delicious, right? So that was my hypothesis. Next up I had to design an experiment, and you can imagine designing an experiment for cookies is pretty dang fun. So we did a little bit of sampling and we noticed, okay, do we like this flavor? Do we like the texture? All these things that you get, all that joy you get out of a cookie, we experimented with. Then we analyzed our data. What did we like? I liked the crunch of the lemon one and I liked the sweetness of the caramel. And I put all that

data together and I analyzed it and I made a conclusion. Guess what? It wasn't the caramel and coconut and chocolate one that I liked the best. It was the lemon one. Totally surprised. Took, you know a little bit of scientific experimenting to figure it out, right? So then the last step of the scientific method is sharing your results. So I told my daughter the scout, guess what? I love the lemon one. So there is an example where scientific method exists in real life, right? So it's all around us. But you know what? You might be wondering how does that correlate to art? Well, artists are some of the most natural born experimenters you can have out there. So all of us in our creativity, you've been experimenting. So whether it's in your practice or maybe you've seen it in some of your favorite artists, you're like, what brush should I use for my painting project? How do I stop dropping every fourth stitch when I knit? What type of clay works best for the sculpture I wanna make? These are all sorts of different experimenting types that you can, experimentations that you can do in art. And actually, you know, Leonardo da Vinci, he's one of the classics who combined art and science together. And he was constantly experimenting and he was going through these steps and he shared his conclusions through these amazing journals that I'm sure you've seen. So let's today talk a little bit about the scientific method. As I mentioned, there are a bunch of steps. First you observe, ask a question, do some research, make a hypothesis, experiment, analyze the data, make a conclusion and report the findings. So if you've downloaded the handout for today this fun poster is in there. A bunch of other stuff too. So, but now let's talk about the activity because this is where we're gonna have some fun. I'm gonna flip my camera and show you hands down how to incorporate the scientific method into an art project. Today we're gonna ask the question what tools create the most realistic texture in a painting of a tree? Okay, so to answer the question what tools create the most realistic textures in a painting of a tree, you're gonna need the following supplies. You're either gonna need to take a field trip or have some natural elements, like bark, wood, leaves, things like that. That you can have in your classroom or head outside with a magnifying glass, things like that. Any of those things, you're gonna need that. You're gonna need some paper, thick paper. You're going to need paint. I've used acrylic, but Tempera works well, too. Gouache would be beautiful in this actually 'cause then you could add a water element to it that, and explore how that changes things. Then you're going to need a bunch of tools that you can paint with. Obviously start with a paintbrush as your very first one 'cause we're gonna use a paintbrush as what's called the control. In a scientific experiment there's always one item that is known so you're not testing that one. It's something you know. So, your artist might know what works best, how a paintbrush works. So be sure to have that. Then you can, the sky's the limit for the rest. Balled up paper towel, balled up paper, pipe cleaners, a Popsicle stick. I have a foam dauber. Things like that. Any of those kind of things are great for this experiment. So those are the supplies we need. Now let's talk about the scientific method as it exists in this activity. So again, we're going to find out what tools work best to make texture. So observe, the first step, observe. Go take a look at some trees. See what you notice. You have on the wood, you have some like bumpy, this is an old rustic piece of farmhouse wood. It's got a rough texture. On the leaves, they're kind of smooth. But when you see a bunch of leaves together they have a whole different texture. On the bark, you'll notice it's kind of bumpy. It's not always is the same height. So have the kids take a look and observe what

they see, as I leave bark everywhere here, and observe what they see. Okay, next, the next step is ask a question and your question here in this activity is set as what tools create the most realistic textures in a painting of a tree. Step three, do a little research. You know what? This is a great chance to bring in some famous painters. Explore how other artists do tree texture in their artwork. Whether it's abstract, realist, that kind of thing. And you can talk about the differences with realism and abstract. Okay, step four. The kids need to make a hypothesis, which you'll remember is just their best guess answer to the problem. So I think that this pipe cleaner's gonna be the most realistic tree texture when I do my painting. Okay, then you have to form an experiment. And what we're gonna do today for this experiment is we're just going to actually draw a simple outline of a tree. And please note, I am doing this simply. I'm not a master drawer here and we've got some branches coming out here. This is just a framework for your tree. And I pull this up so you can see a little bit better. So very rudimentary. If you need to talk to the kids about parts of a tree be sure to check out the handout 'cause I've got a great worksheet, printable that they, you can use up on screen or print it out to talk about the parts of a tree. Okay, then let's get started. So our experiment, we're going to pick four things today. I'm gonna pick a brush, the pipe cleaner. I'm going to pick a Popsicle stick and I'm gonna pick a, not the paper towel. I'm gonna pick a piece of paper. Okay, these are the things I want to test and see how they work. So then you just get painting. Let's start with the brush, okay? I'll do the trunk here, okay? And then just start painting. Okay, so here's a great chance to talk about dry brush versus wet brush and how much paint is loaded. Okay, I like that sort of dry texture. That looks a lot like bark on there, you know? So as you take a look at bark versus that, there's some positive results there. Let's try a pipe cleaner. Dip that in. Do a little more bark. Oh, that doesn't hold much paint, huh? So that's extra airy and it gives a little streaky. Okay. That's item number two. How about a Popsicle stick. I'm gonna make a big, wide, ooh, look at that. I wanna show you that up close. Look at the edge of this. It almost is doing that same texture that you find on the edge of a bark. See how that's not flat right here. Goes up and down, up and down. That Popsicle stick did the same kind of thing. Okay, now just for fun, I'm gonna show you one more and I'm gonna do it green here to give you your leaves and I'm gonna dauber up here, okay? Look at that. We just made sort of a distance tree view with different, with the, do we like that? Do we like, got another paint brush. Or do we like making leaves like that? So you can test painting in different parts of the tree not just the trunk of the tree or the top. Now, okay, so you've done your experiment. Now you need to analyze the data. In this project, this is our data. Our artwork is the data. So you're gonna look at this and see what looks most realistic? What looks most like bark? I love that Popsicle stick 'cause it gave me that rugged edge. For the leaves, I liked the daubering of the paper. So that's analyzing your data. So my conclusion is to create a realistic painting of a tree, I would wanna do more with the crumpled paper and the Popsicle stick. So now, in art, what do we do to report the findings of art? We share. So that's what you do here. Share your project, show your art. Have everyone else enjoy your creativity. Now wasn't that fun? Now I'd love to talk a little bit about how you can modify the activity for the artists in your classroom. How you can adjust it for less experienced, more experienced artists, younger, older, et cetera. So first up, for your younger artists or less experienced artists, you can turn this into a simple mark making activity.

You can just have them explore textures and compare it to a leaf. It could be a great art station for you. And they don't actually have to paint a full tree. Or you could actually have a template for them of a tree to fill in with texture, especially if you need something for the bulletin board out there in the hallways. So that's one way to do it. Now let's say you have more experienced artists in your classroom. This is a great project that can get way more sophisticated than what I show you today. And it's a great opportunity for kids to explore realism or Renaissance artists, to look at how some of the most famous artists in the world have explored texture in trees. It's also a great way for them to study composition and depth of field by painting a whole landscape and exploring how texture changes whether the tree is close or far away. So those are two ways to modify this specific activity for your classroom. Now, what if you just wanna add the scientific method to your classroom with another project? In the handout today, be sure to download this before you go from this conference, I've included a worksheet that helps you think through this scientific method framework and add it to the next project you do in class. It helps you ask the question, frame the hypothesis for kids, explore what materials you might need. It's just a quick worksheet to help you plan your next activity. Also in the handout are written instructions for the project so that you can reference them later. And, as I mentioned, a very fun parts of a tree. It's a good way to add science into your art lesson and a super fun freebie. So I mentioned that I am the author of the series called "STEAM Explorers." I have a freebie for you. You can go in, download the color ebook which is filled with fun projects and filled with science, tech, engineering, art, and math, like toothpaste batik, and color changing chemistry clocks and things like that. It's really fun. And I wanted to give that to you as a freebie for joining me today for this scientific method in arts session. No matter how you explore the scientific method through art I just want you to remember, it's all about curiosity, creativity, and wonder. So keep experimenting, keep asking questions, keep exploring the world around you. And I hope you come to the conclusion that art and science are amazing and that they're even better together. Thanks so much for joining me today, bye.