**Zeta Wilson:** Welcome, and thank you for attending this afternoon to the final webinar. My name is Zeta Wilson, and I’m the project manager for Aboriginal Perspectives in the curriculum unit F-10 at the Victorian Curriculum and Assessment Authority.

And just before I start this presentation about Aboriginal perspectives in the Victorian curriculum for STEM in the secondary setting, I would like to acknowledge my colleagues who will be assisting today, and that’s the manager of Victorian curriculum F-10 unit, Craig Smith, with his support for the Q&A section, and Peter Fisher, with the behind-the-scenes support for these webinars. Also I would like to acknowledge my colleague the curriculum manager Erin Wilson, and the key stakeholder from VAEAI, Vaso Elefsiniotis, who will be co-delivering this afternoon.

Also, too, if you’d like to improve the sound quality, you may want to try the auto broadcast button, which is below your screen, to see whether that would make a difference. Also, I would like to inform you that this presentation is being recorded and the recording and the PowerPoint presentation will be made available on the VCAA F-10 page. And all you have to do is follow the links.

So, today, in this webinar, we’ll be managing the questions only through the chat functions, and all you need to do there is just select “all participants”, then we’ll be able to see the questions. So at the end of this session, depending upon the time, we will answer your questions.

So before we start our session today, I’d just like to do an acknowledgment to country. I would like to acknowledge the traditional custodians of the many lands across Victoria on which each of you are living, learning and working from today. For me, I would like to acknowledge the traditional custodians of the Wadawurrung people and their ancestral lands that I’m speaking to you from today. When acknowledging country, we recognise Aboriginal and Torres Strait Islander people’s spiritual and cultural connection to country. We acknowledge the continued care of the lands and waterways over generations and celebrate the continuation of a living culture that has a unique role in this region. And as we share of our knowledge in teaching and learning, may we pay our respects to elders past, present, emerging, for they hold the memory, traditions, culture and hopes of all Aboriginal and Torres Strait Islander people across the nation and hope that they will walk with us on our journey.

So, the overview of STEM today. So, I would like to begin just to talk about the content of the presentation. In it, I’ll just cover an overview of Aboriginal perspectives in the Victorian curriculum, by considering the cross-curricular priorities about learning about the histories and cultures of Aboriginal and Torres Strait Islander peoples, also provide briefly an overview of Aboriginal perspectives in STEM, and I will consider some of the protocols – really, one – and just some suitable resources for imbedding Aboriginal perspectives in STEM for secondary teachers in a localised and Victorian context.

And the STEM curriculum manager, Erin, she will provide an overview of STEM in a localised and Victorian context by highlighting, as well, resources. And the key stakeholders – I’d really like to acknowledge, too the involvement from VACL, Aunty Fay for...there’s an apology. But we have Vaso from VAEAI. She too will share her expertise, knowledge, and contribute in the Q&A section.

Sorry about that. Jumping ahead. Alright. So, the overview of STEM. As we know, there are different concepts of science and ways of knowing about the world, and for Aboriginal and Torres Strait Islander people, it’s about that rich culture and the traditional knowledge they hold. It’s the way they do things. It’s about the cultural practice, the knowledge and skills.

Take, for example, Aboriginal and Torres Strait Islander people that had that big knowledge about scientific...scientific understanding of country – for example, sustainable water practices – and the inventions and innovations. Also too, just think of the environmental science, to the astronomy, understanding the Earth’s ecosystem, medicine, the knowledge of weather, climate, seasons, fire-stick farming, tools and technology. So, you can go from agriculture to aquaculture. So, definitely, when you look at culture and the traditional knowledge of Aboriginal and Torres Strait Islander, it has a place in STEM learning.

Alright. So, Aboriginal perspectives in the Victorian curriculum. As we know, to meet the diverse needs of all students, the Victorian curriculum F-10 provides an inclusive and flexible framework for schools to develop their teaching and learning program. Learning about the histories and cultures of Aboriginal and Torres Strait Islander people is embedded across the Victorian F-10. Because it occurs in different curriculum areas, we call it the cross-curriculum priority.

And the cross-curriculum priority for learning about the histories and cultures of Aboriginal or Torres Strait Islander people provides the opportunity for all students to deepen their knowledge and understanding about the oldest living culture. It is also important for Aboriginal and Torres Strait Islander students in the classroom to see their own cultural identity and their history reflected in their learning. So by engaging with the learning across the 11 years of schooling, from Prep to Year 10, students will build their ability to show their appreciation and understanding about why – why it’s important to show the respect and empathy towards the First Nation peoples.

Now, this deep learning over time can only occur because of the meaningful learning experiences that explore the shared viewpoints and the perspectives from Aboriginal and Torres Strait Islander people when learning about the rich histories and cultures here in Australia.

Now, the point about a localised and Victorian context. One great state...one great starting point is the community-preferred education model, when it comes to learning about the history and culture of Aboriginal and Torres Strait Islander people. Start teaching your students in a localised and Victorian context. Now, what do I mean by that? Firstly, think about where your school is situated. Who are the traditional owners? Then localise the contents about the history and culture of the traditional owners to suit the local area, the community and surrounding areas. Next, you can extend your teaching and learning program to incorporate the many Aboriginal groups across Victoria. Then you’ll be providing that Victorian context. Now, by following this community-preferred education model, you’ll be able to embed Aboriginal perspectives across the curriculum that are focused on a localised and Victorian context. And of course, you can extend the students’ learning about the histories and cultures of Aboriginal and Torres Strait Islander people across Australia.

Alright. The STEM overview. So, this table, all it is showing is the number of content descriptions and elaboration that actually make those explicit reference to Aboriginal and Torres Strait Islander histories and cultures for STEM in a secondary environment. So, that middle table is just the overview, including the primary and secondary, and then the other side is just highlighting the secondary.

Now, if you would like the summary of the curriculum content about learning about the histories and cultures of Aboriginal and Torres Strait Islander people, it’s found on the VCAA website in the section of Overview, and just under the cross-curriculum priorities, you’ll find that table and the breakdown of all the curriculum areas.

Alright. So now I’ll hand over to Erin, and Erin will talk about STEM. Thank you, Erin.

**Erin Wilson:** Thank you, Zeta. Can you pass me the ball? Have I got it? Excellent. Alright. So, I’m going to talk a little bit about STEM, and then also embedding Aboriginal perspectives in the STEM curriculum within the Victorian curriculum.

First of all, I would like to acknowledge that I am on Dja Dja Wurrung country today. So I certainly acknowledge the care and custodianship that the elders of the Dja Dja Wurrung people and all Dja Dja Wurrung people have given towards the land that I’m on currently. But also I’d like to acknowledge Zeta, who is with us today, and I pay my respects to elders past, present, future and emerging in terms of all the contributions that they’ve been able to give us, in terms of, you know, in our lives and also in education specifically, which is what we’re here to discuss today.

So, from a....you know, setting the scenes in terms of STEM in the Victorian curriculum F-10, what we are really talking about is the content knowledge and the inquiry skills and the skills that underpin science, mathematics, design and technologies and digital technologies, acknowledging that engineering – the E in engineering – is under design and technologies. And then we’re looking at science inquiry skills and creating designed solutions.

And this focus on inquiry is something that’s really important and useful when we’re thinking about how we can embed Aboriginal perspectives authentically in the work and teaching that we do. Just like we’re, hopefully, making authentic links...or authentic STEM links between our curriculum, and that all of our STEM activities are related specifically to the Victorian curriculum, we’re also making authentic links in terms of Aboriginal perspectives as well.

So, as Zeta’s already highlighted, when we’re thinking about Aboriginal perspectives and embedding those in the curriculum to highlight perspectives and highlight curricular opportunities, we should also be thinking of STEM as a way of delivering the curriculum. So STEM shouldn’t be comprising, adding or existing...content or knowledge to the Victorian curriculum, but it’s a way of delivering the Victorian curriculum.

So, as I talk about Aboriginal perspectives moving forward, that’s the kind of real focus that I’ve got, in terms of STEM being a way of integrating and delivering the curriculum.

The main point for me, when I start to think about embedding Aboriginal perspectives, what I’m really focusing on is, I’m focusing on the science inquiry skills and creating designed solutions as a link between the two.

What we know is that there are many commonalities between what we would deem Western science... Or perhaps, as a non-Indigenous person – so, myself – is my first real exposure to science is from a very much a Western perspective. OK?

Indigenous ways of knowing my exposure to science have very...have things that are in common. They both seek to explain complex systems, complex ecosystems, complex physical, chemical science...phenomena. We both seek to understand the physical world. They’re definitely based on observation, and observation of our surrounds. They both recognise that bodies...that they’re bodies of knowledge that change over time. And so, really, from my perspective, I think about the changes in knowledge that we’ve made from a scientific perspective, also recognising that Aboriginal and Torres Strait Islander people are the longest continuing living culture in Australia. So their body of knowledge is continually changing over time, and the contribution that they’re making towards understanding is continuing over time. OK? Both are verified through repetition as well.

And there’s many articles that are out there available to you if you’re interested in this intersection between Indigenous ways of knowing and Western science. There’s a couple included here for you. And then there’s also another source down here, where...which is the Baker, Rayner & Wolowic. I will make an acknowledgement that Baker, Rayner & Wolowic are...first of all, based on First Nations understandings and links between Western science in Canada, but it’s still useful as a model for us to consider as well.

So, as Zeta’s already mentioned and perhaps highlighted, the mapping of the Aboriginal perspectives in the Victorian curriculum from a STEM perspective – so for science, technologies and mathematics – is available in these documents. There’s also two really good sample units of work. Now, they’re found under the Aboriginal Languages section, but there’s one that focuses on Aboriginal people and the environment, and then also the Eels Project as well. So they’re really useful places for you to start to look at as well, thinking about how you might authentically embed Aboriginal perspectives.

And when we’re talking about authentically embedding Aboriginal perspectives, what we’re wanting to do is we’re wanting, where appropriate, for Aboriginal and Torres Strait Islander students to see themselves in the curriculum, to have their circumstances, their lives, represented in what they’re learning, as well as, you know, exposing all of the students and giving them the opportunity, all of our students in the classroom, to understand Aboriginal perspectives.

So that’s what I’m thinking of when I start thinking about it from a local context. So, I’ve already acknowledged that I’m on Dja Dja Wurrung country. And so that’s a really great way for me, as a classroom teacher...that’s...it’s the place to start. As a classroom teacher, when I’m thinking about the teaching that I might do in my maths classroom, the teaching that I might do in my science classroom, the teaching that I might do in a design and technologies classroom. Now, my background is obviously maths and science, so I am just mainly the S and the M, from a secondary perspective, in STEM, but in my primary teaching, I was also the S, T and the E in the middle.

But, for me, my local Aboriginal corporation is the Dja Dja Wurrung Clans Aboriginal Corporation, and they have an extensive amount of information that’s available on their website. So I start there for my story as well, when I’m thinking about embedding Aboriginal perspectives. If I’m thinking about when I’m talking about geological events, and I’m thinking about rocks and minerals and rock formations, then I can start here with The Two Feuding Volcanoes creation story.

And Culture Victoria – you’ll see that I’ve included many links to Culture Victoria through this presentation as well – they’ve got some really, really useful and suitable resources, alongside videos, stories, information, for you to really increase your knowledge, OK, because I do think it’s a journey, particularly for me as a non-Aboriginal person. It’s a journey for me, and I’m a little bit blessed, I think, because I’ve got the experience of Vaso and I’ve got the experience of being able to work with Zeta, and so I’m continually improving and increasing my knowledge. But I’m starting small, in many respects, sometimes. I’m finding the authentic links.

So, The Two Feuding Volcanoes story, the creation story, is a really good opportunity for me to link Aboriginal perspectives when I’m talking about that aspect of the curriculum.

The other thing that is of interest to me, particularly, given the time of year that it is, is climate and seasons, OK? And I’m sure that you perhaps, being living in Melbourne, living in Victoria, are aware of the fact that the four seasons of the European tradition don’t really adequately describe the climate and the seasonal changes that happen in Victoria. One of the things that I first notice on...where I am, on Dja Dja Wurrung country, is that the wattles start to flower really, you know, late July, early August. And so people talk often about, “Oh, it’s so long till spring,” but I’m already seeing seasonal change and I’m seeing seasonal change here that’s really reflected in the calendar of the Kulin Nations. OK? And so the calendar of the Kulin Nations describe seven seasons. If you’re slightly more west, so you’re more over towards Wadawurrung country and you’re over towards Zeta, then you’ll notice that there’s probably mainly more six seasonal changes.

And we do have the pleasure of Vaso here today to talk more about VAEAI resources, but the Koorie seasons and astral calendars are a really good useful source. So thank you, Peter, for putting in the link to Culture Victoria, and I would really encourage you to spend some time. I got lost when I was creating the presentation. I spent hours, I spent the weekend, you know, really immersed, being immersed in the stories and the resources that are available out there, in terms of being able to think about the curriculum links as well.

The other aspect that I can link to is also the Dja Dja Wurrung Aboriginal waterways assessment. And so... Thanks, Lisa. She’s also posted in the Bureau of Meteorology. So, it’s great for Indigenous weather knowledge. And when I’m... I would certainly also consider if I’m thinking about going from local to regional to state or national, I would then use the Bureau.

So there’s a question there from Lauren that says, “Which calendar do you teach for the Dja Dja Wurrung?” They’re actually part of the Kulin Nations, so I would therefore talk about the Kulin Nations as well. So, that’s the calendar that I would use from that perspective. So, therefore...

Aunty Fay, unfortunately, is an apology, but VACL has a really nice map of Aboriginal country throughout Victoria. So you’ll be able to think about those links as well.

So another source locally that I can... And, Vaso, please jump in at any point in time that you want to, if you would... I can see her smiling and nodding. The other thing that I’m thinking about, when I’m thinking about from a STEM perspective and an environment perspective, is that I can link in to the Aboriginal waterways assessments that are taking place. And there’s some really good resources available at water.vic.gov.au. OK? So they... I’ve chosen specifically right now in the presentation to link to the Dja Dja Wurrung waterways assessment, but there are other waterways assessments. It’s... There’s videos available. There’s videos of elders of going out on country and doing the waterways assessment as well, too. So that’s another source of local content that I could start in terms of from a STEM perspective.

The Myrnong daisy is definitely one that I can do from a Dja Dja Wurrung perspective, but also across the south-eastern areas of Australia, really, is something that people can consider. So, you might also know it as the yam daisy, and it was really a very plentiful food source that was available throughout south-eastern Victoria. So, therefore, it can be used from a science perspective, but also, if you’re looking at it from a STEM perspective, from design and technologies and home economics as well.

The other, you know, real key point that I started to think of when I’m thinking, “OK, what’s local? Where are the connections that I can make as well?” So, obviously, I’ve just acknowledged that the Dja Dja Wurrung people or the Jaara people, were part of the Kulin Nations, and so they traded extensively with the Wurundjeri people and the Taungurong people that were north and a bit more east. And they really...they traded with the Wurundjeri Woiwurring people to obtain stone hatchets. And so Mount William is a Aboriginal... National Aboriginal Heritage-listed place. And so that will be another point in my design and technologies and STEM curriculum that I can also start to make links or embed within my curriculum when I’m talking about design technologies from that perspective as well. And so therefore, what I’m doing is I’m starting local but I’m then going regional, because I’m talking about the relationships that the Dja Dja Wurrung people have had.

And also, it’s interesting – I was doing some more... It’s amazing what you can find with Google these days. I found a heritage assessment from the Hepburn Shire – so that’s the shire council within Dja Dja Wurrung country – and they...it gave me extensive information that I was not able to access at other points in time.

The other thing is that you will find also that local councils are sometimes a really good source of maps and information. Many local councils are developing... Well, I hope most, all of them are developing reconciliation action plans. And so, for me, the Macedon Ranges Shire Council gave me access...was able to share with me the registered traditional...the traditional owners. So, the maps for the Dja Dja Wurrung, the Wurundjeri and the Taungurong as well.

Particularly from...in terms of design and technologies, if we’re thinking about designing engineered solutions and design...design thinking, possum skin cloaks are a...you know, a fantastic opportunity for you to embed Aboriginal perspectives from a Victorian perspective.

And Aunty Fay can’t be here today, but if you do go to Culture Victoria and you click on the Possum Skin Cloaks, you will see videos of her talking about the possum skin cloaks that she has created as part of the 2006 Commonwealth Games. And there’s some really excellent resources there available to you, as well, from that perspective, particularly in terms of fibre technology as well.

And, Vaso, I might just pass to you if you want to share.

**Vaso Elefsiniotis:** Yes. Here we go. Hello. Good gremlin noises in the background. Hello. (CHUCKLES) Thanks, Erin. I’m just going to share... So, Erin’s talking about possum skin cloaks, and there is a beautiful video, which is not showing up on my screen now... Here we go. Can you guys see that...there? So...I can’t play it, the video, and I’m hoping that you can see it. Erin, if you want to nod, if you can see it on the screen. Great. Alright. Because we were talking before this session about what’s available on possum skin cloaks, and the Culture Victoria site is excellent, because of the cloak-making revival project that happened.

But I also want to just alert you to a beautiful documentary that was made by VACCA – the Victorian Aboriginal Child Care Agency – a few years ago, I think, around 2014, that’s on Facebook. We will put the link into the chat. And this is beautiful because... You know, we often... All throughout these webinars, we’ve been talking about genuine perspectives and authentic perspectives. And this is made by VACCA, but it’s led by Aunty Esther Kirby from Kerang, and Vicki Cousins, who is a highly respected cultural educator and linguist and an elder from Gunditjmara country, and Muriel Bamblett, who’s the CEO of VACCA. And so this cloak-making project was done with a group of kids. And they... There was a lot of talking – so, talking about around family, community and culture – before coming up with the design ideas. And so... Look at this in your own time, but you get to see how the cloaks are designed out of this beautiful project.

Over to you, Erin. Or, Peter, if you might pass the ball to Erin, please.

**Erin Wilson:** And stop sharing your screen, Vaso.

**Vaso Elefsiniotis:** Oh, yeah.

**Erin Wilson:** Yes. OK. So... We’ve got another link there from Yarn Strong Sista. Might just need a bit of mute, Vaso. So, Yarn Strong Sista is also another resource. And Culture Victoria also then really starts to look at Aboriginal canoes as well. OK? I will go down further... And I can see a question about The Two Feuding Volcanoes, and I’ll just focus on that in just a moment.

So, Aboriginal canoes is also another really useful aspect for you to be able to think of in terms of design and technologies. And again, I’ve chosen these two specifically from my local perspective, first of all, because I know that there is evidence across Dja Dja Wurrung country in terms of scar trees, and use of Aboriginal canoes, and that one as well.

So, as I said, there are many resources out there for you, and Peter has said that we will be sharing these slides. So, if you can’t copy down the URL right now, but you want the resources before you get the...are able to publish the recording, I would certainly look for the DWELP Aboriginal water program. The Australian National Herbarium has some good resources in terms of Aboriginal use of fungi and Aboriginal plant use. The University of Melbourne is... got a project happening at the moment that’s looking at Indigenous knowledge curriculum resources. So they have specific resources for science, technology and maths learning areas from 7 to 10, and then they also have themed teaching resources – so, if you’re looking at astronomy, fire and water. And great job, Peter, for posting all those links in as well.

But the Nyernila section on Culture Victoria is really useful for you to be able to find creation stories for your particular...for the country that you’re particularly relate...located on. So that’s what I’ve got here. So, Aboriginal places and objects is really useful through Aboriginal Victoria, and then Culture Victoria has all of these resources available. Melbourne Museum has the Kulin Nations calendars. You can find out through there with the Forest Secrets Gallery. But the VAEAI one is far superior. No. (LAUGHS) It’s useful. It’s linked to the curriculum. It has the curriculum resources. But Vaso is going to talk more about those.

“So are there resources I can access where Aboriginal language is used?” Yes. So, certainly, have a look at the Aboriginal language units that I mentioned earlier that are on the VCAA website. So, there is Aboriginal people and the environment and the Eels Project.

The website that has the plant use information is the National...Australian National Herbarium. It’s not detailed by...in lots of detail, but it certainly gives you some advice, and that’s where I found the information specifically about the Myrnong daisy, which is useful from my perspective. The Aboriginal Astronomy website is also useful in terms of teaching resources, research and also external resources. And I’ve doubled that up.

So, as I mentioned, and we’ve got... We’re, you know, really lucky to have Vaso here to share some more information about it, but certainly start with VAEAI, OK? Which is the Victorian Aboriginal Education Association. VACL also has really useful resources. Aboriginal Victoria. The traditional owners, if it is recognised, and then also local traditional organisations.

And there’s my contact details, but you can find them also on the VCAA website. It’s really easy – Erin.Wilson@education.vic.gov.au.

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