**Alicia Farrell:** Good afternoon, everyone, and welcome to today’s webinar, introducing the Victorian Curriculum: Design and Technologies for F–6. My name is Alicia Farrell and I’m the project officer in the Victorian Curriculum F–10 Unit here at the Victorian Curriculum and Assessment Authority. It’s my great pleasure to introduce you to the curriculum manager for Design and Technologies, Leanne Compton, who will be leading our presentation today.

But before we begin, we will start with an Acknowledgement of 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 myself and those of us in the Melbourne metropolitan area, we acknowledge the traditional custodians of the Kulin Nations. When acknowledging country, we recognise Aboriginal and Torres Strait Islander peoples’ spiritual and cultural connection to country and acknowledge their continued care of the lands and waterways over generations, while celebrating the continuation of a living culture that has a unique role in this region. I would like to pay my respects to Elders past, present and emerging, for they hold the memories, traditions, culture and hopes of all Aboriginal and Torres Strait Islander peoples across the nation, and hope they will walk with us on our journey.

Before we get into the presentation today, I’ll briefly go over some housekeeping. Please note that the chat function is only being used to share relevant information and links from the VCAA. You will notice that a Q&A box has been set up, so please use this to put your questions and comments in this, as this will help us ensure that all queries are attended to and we do not miss any of the questions. When you use the Q&A box, please make sure you select all presenters, so that all panellists can see your questions as they come in. We will answer these questions in a couple of ways. Firstly, we may type our response directly into the Q&A box, which all participants will be able to view, or we will have a dedicated Q&A session at the end of the presentation, where Leanne will address these queries. The second part of our housekeeping is to let everyone know that this session is being recorded. A copy of both the recording and the PowerPoint, plus a transcript, will be loaded onto the VCAA’s F–10 resource web pages under the Professional Learning Section. A copy of the recording and PowerPoint will also be emailed to participants in the coming days. So, without further ado, Leanne, I’ll hand over to you for today’s presentation.

**Leanne Compton:** Thank you, Alicia, and welcome, everyone, for coming along this afternoon. I know it’s always busy in a school term and in a day in the life of a teacher, so thank you for making the effort to come along. As Alicia said, I’m the curriculum manager for Design and Technologies at the Victorian Curriculum and Assessment Authority. In tonight’s webinar, we’re going to focus in on the Victorian Curriculum, the F–6 Victorian Curriculum for Design and Technologies. So, I’ll be unpacking this curriculum. I’ll also talk about using the Victorian Curriculum F–6 to deliver content in Design and Technologies, and also highlight some resources that we have available for all teachers on our website that focuses in on Design and Technologies in the F–6 curriculum.

So, I’m just going to start by recapping some of the information about Design and Technologies, and where it fits in the Victorian Curriculum. Design and Technologies is the curriculum area that sits under the learning area of Technologies. So, if you have a look at Technologies, there are two curriculum areas. There’s Digital Technologies and Design and Technologies. So, today, I’m going to focus in on Design and Technologies, which is the area that I look after.

Be aware when we’re talking about the Victorian Curriculum, we use the terminology of curriculum areas, we talk about strands and sub-strands, content descriptions, elaborations and achievement standards. So, I’ll unpack these terms in the coming slides as we go through and discuss Design and Technologies.

When you do look at Design and Technologies, often what we do is, we focus in on the curriculum, which is really important to actually look at Design and Technologies and have a focus in on the level on the band description, and for Design and Technologies it’s typically written over a two-year band. So we have that description. We have information about the content descriptions, or the content you need to teach, and the elaborations, or examples of how to teach the content. And we have achievement standards.

I also want to highlight that, on the curriculum page, we have an introduction to Design and Technologies, and it’s important to click on this link to get a really good understanding of the rationale and aims of Design and Technologies, how it’s structured – for example, the placement of the strands and sub-strands, and consequently the placement of the standards in Design and Technologies. It has information about learning in Design and Technologies, and a scope and sequence, which actually is a really good summary of the content descriptions and the achievement standards across the band levels. In addition, it has a glossary, and it’s important to perhaps read the glossary, just to get an understanding of some of the terminology for Design and Technologies, and some of the nuances with the terms used in the curriculum. So, for example, when we talk about designed solutions in Design and Technologies, we’re referring to a product or a service or an environment that has been designed. So it’s important, I guess... I really want to emphasise not to just focus in on the curriculum information, but also the introduction, to understand the rationale and aims of the study.

I thought it’d be really useful to start with having a look at the structure of Design and Technologies, and getting an understanding of the band descriptions, content descriptions, elaborations and achievement standards. So, the band descriptions provides an overview to the content descriptions and the achievement standard within each band. So, it’s a good summary of what content is found in each band. The content descriptions specify the knowledge or the understanding and the skills that students are expected to learn. So they tell you what content you need to teach. The elaborations are illustrations or examples of the content descriptions. So, unlike content descriptions, the elaborations are not mandated. The elaborations are just examples of ways that you could teach the content descriptions.

We also have the achievement standards that describe what students are typically able to understand and able to do at each of the band levels. They describe expected behaviour – sorry, expected achievement – and emphasise the depth of conceptual understanding and the sophistication of skills at that band level. So the first achievement standard is from Foundation to Level 2, and then again, at Levels 4, 6, 8 and 10. Keep in mind, with the achievement standards, that this is where students are able to demonstrate their understanding of the content descriptions, so it’s about what students are able to say, do, make or write. So they don’t necessarily have to write information to demonstrate their understanding. It could be what you observe in a classroom. So it’s what students are doing or what they’re saying or what they’re making. And particularly in Design and Technologies, it’s a hands-on subject, so students can demonstrate their learning through hands-on activities, such as doing something, making something or telling you what they were doing, as well as writing as well.

So, when we come to unpack Design and Technologies, it’s important to understand that Design and Technologies is about how we create the design solution, how we create the product, the environment or the service that builds on the end-user experience to meet current needs, as well as future needs, in sustainable ways. So, sustainability is really important, and I’ll unpack Sustainability a bit later in this presentation. But it’s important to realise that a design solution can be a product. So, a product could be something like a table, a salad, a chair, a cushion, a card that they make. So, it’s a product. It could be an environment, and an environment could be a garden, it could be a wetland. Or it could be a service. So, it could be that they have to make... They could be doing some catering for a fun day or for a fete, etc. In most cases, you’ll find that there are lots of examples of products that students make. So products tends to be the focus of the design solution, but there are lots of examples of environmental services as well in terms of a designed solution. The end user is really the person that is using...using the product, service or the environment. So, in the image there, you’ve got a child in a playground, so the playground is the environment there. There could be products within the environment, such as a slide or a swing, etc. So I guess it’s really important to understand it’s about creating the product, the environment or the service, i.e. creating the designed solution in Design and Technologies.

It’s also important to note, in Design and Technologies, it’s not just about making an appealing or an aesthetic or a functional thing. It’s also really important to note that Design and Technologies is about design thinking, and really focusing in on creative design thinking and critical design thinking. It’s about making something that is different. So it’s not about just making the same thing – making a car that everyone else makes. It’s not just about making a cushion that you see. It’s about doing something differently. So you want to really support students in terms of understanding about creative design thinking, so putting, I guess, strategies into place that really get them to think about thinking creatively, and also about thinking critically, about making design decisions as well. So, keep in mind, it’s not just about making a product that will meet a need that is appealing, functional or aesthetic. It’s also about supporting them to think creatively and critically in their design thinking. So, in the example there, we’ve got all the black umbrellas. So you want students to think differently and create that red umbrella, in terms of their designed solution.

So, when you’re teaching about Design and Technologies, students need to be addressing a problem, a need or an opportunity. And as a teacher in the F–6 curriculum, you would be giving that problem, need or opportunity to the students. So you’ll be giving them a scenario so that they can address the problem, the need or the opportunity, and that is delivered in a design brief. So you’ll be providing some parameters about the who, the why, the what, the where and the when. So it might be something as simple as you’re designing a garden, and that is an environment, and what would be the best type of soil for the plants to grow in the garden. So you might be growing a particular plant, and then you might have different types of soil, and then get students to do an experiment about the height of the plant, and which one will grow best in the soil. Or it could be the amount of water or the sunlight. So, again, the...the problem might be, what is the best, you know, soil conditions to grow the plant, which is the problem, and then the students will have to do some investigating and coming up with ideas about meeting that problem. They might be looking... And this is where you need to get them to think creatively and critically. So, they might be looking at, you know, what would be a nice shape to have on...as a necklace, and then looking at nature for different types of shapes and things that they could use. Or they could be looking at balls and, you know, which is the best shape to catch with, or which is the best shape for handball, so you want to get them to be addressing a problem, a need or an opportunity, and your role, as a teacher, is to provide them with that problem or need or opportunity, so they think about a range of possibilities. There’s no one right possibility. They need to do some investigating to determine how they meet that problem, need or opportunity.

So, to explain it a little bit further, you might want to think about... I’m not too sure whether you are aware of the design of the Japanese fast train. And, really, what happened was that the engineers didn’t look at other train designs to come up with the design of the fast train. They actually looked at a range of options. And one of the engineers happened to be an avid bird-watcher. And what he realised was the kingfisher, the shape of the kingfisher, allowed the designers of the Japanese fast train to model the shape of the train so it looked like a kingfisher, and that enabled, when the trains went through tunnels, not to create as much noise. So when you’re thinking about getting students to think creatively, you want them to look outside of the products that they’re normally...that they would be designing. So, in this case, the designers of the trains didn’t look at other train designs. They looked at nature. And nature’s a great example of getting students to think outside of the square, to think creatively, when they’re doing that design thinking. So, the shape of the kingfisher, the head and the beak, is very similar to the shape of the Japanese fast trains, and that solved the problem in terms of the fast trains travelling through tunnels and minimising the noise.

So when you’re thinking about that creative thinking, if they’re making a chair, for example, it’s probably not best to investigate and look at other chairs, because you’re not going to do that creative thinking. You might need to look outside of chairs, and look at other types of buildings or nature and so forth. Another example could be the creation of Velcro, and how the designer in that case – he was an engineer – he realised that little burrs that got stuck on himself as well as his pet dog, I think it was, when he looked at it, he realised that it was about hooks hooking onto fabric and so forth, and that’s how the Velcro came about. So, again, that’s another example of how to solve a problem with, for example, in this case, fabric and Velcro, or Velcro generally, is they looked at nature. So there are great ways to think about that problem solving, get kids to think creatively there.

So, going back to basics here with Design and Technologies – as I mentioned, it sits under the Technologies learning area, and there are two curriculum areas, Digital Technologies and Design and Technologies. We’re focusing in on Design and Technologies today. And then there are three strands in the Design and Technologies – Technology and Society, Technology Contexts and Creating Designed Solutions. So, I’ll unpack each of these strands and talk about ways that they can be incorporated and taught together as well.

So here we go. Design and Technologies is about focusing in on how people use and develop technologies. So, the example of the thing...of the fast train is an example of how people use nature to design the fast train there. And when we talk about technologies, it’s a term that is really good to get your head around, that technology is a process, but also things such as tools and equipment are technologies. So, a knife is a technology. And often we think that it has to be really current and it has to be digital to be a technology. In Design and Technologies, if you look at the glossary, it’s about the tools and equipment. So, a knife is a technology. A piece of wood is technology. Ingredients are technologies as well. So some of them are quite traditional technologies, whereas others are more contemporary forms of technology. So, different types of fabrics – there might be odourless wool fabrics, so that’s an example of quite a, I guess, contemporary form of technology, whereas wool, wool fabric, is a more traditional form of technology. So, when you’re looking at technology, it’s about the processes as well as the tools and equipment.

So, again, when you’re focusing in on Technology Contexts and I’ll unpack what each of those are, you would be focusing in on how designers in each of those areas have used technologies to come up with designed solutions. So with the Technology Contexts, there’s four contexts in Design and Technologies. There is Engineering Principles and Systems. Food and Fibre Production, which is very similar to agriculture and horticulture, with forestry included in that one. We’ve got Food Specialisations, so focusing in on food, and then we also have Materials and Technologies Specialisations. So, examples could be wood, metal, plastics, textiles, etc. So, with the Technology Contexts, when you are exploring them, it’s based on design thinking, design processes and production processes, and typically addressed through a design brief. So, when you’re exploring different types of food, for example, you’d be looking at some of the production processes, such as, you know, measuring food, chopping food, baking food, etc.

The final strand is Creating Designed Solutions, so you’re focusing in on the characteristics and properties of each of the four Technology Contexts. So, for example, you might be looking at...you might be making an electronic card, a card that says...or lights up when it’s opened. So you might be looking at the type of card that you would be using, and the weight of that card, so you’d be looking at whether you want to have just a plain card, like white cardboard, or whether you’d want to have coloured cardboard, and also the weight of the card as well, the cardboard, in terms of you need to have a certain thickness for it to be stable enough for the card to sit upright, but you don’t want it to be too flimsy for it to fall over, nor do you want it to be too thick so you can’t fold it properly. So those things, looking at the characteristics and properties of the four Technology Contexts. Another example is you could be looking at different types of...fruit, and looking at the colours of different types of fruit. You might be looking at the taste of fruit, you might be looking at the sweetness of certain fruits and so forth. So, again, you’re focusing in on the characteristics and properties of the four different...the four Technology Contexts there.

So, let’s have a look at each of those strands in a bit more detail, and go a bit deeper with it. So, when we’re looking at Technology and Society, you might be looking at movement of air through fans. So you’re looking at the design solution, which is the fan in this case, and looking at the purpose of fans, and why we have fans, and where fans are found. You might even want to go and look at bladeless fans, because recently there’s been the development of bladeless fans, and looking at how they work as well. So, again, this is an example where in Systems...or Engineering Principles and Systems, you can explore Technologies and Society. So this is one example. There are no sub-strands in this strand, and it’s looking at the technologies in society. So, if you’re looking at Engineering Principles, you might be looking, in this example, at fans, but you would use other examples when teaching the other contexts.

As I mentioned, there are four contexts – Engineering Systems and Principles, Food and Fibre Production, Food Specialisations, and Materials and Technologies Specialisations. Now, these Technology Contexts don’t need to be taught separately. They can be combined together. And I’ll give you some examples later in this presentation of how that could occur. It’s a school-based decision about how you teach the Technology Contexts, but they do need to be taught at least once during that two-year band from Levels 3–8. So when you’re looking at Engineering Principles and Systems, it’s really about exploring how forces can be used to create light, sound, heat, movement, control or support in systems. So you might be doing some simple circuits here. You may find that in your school that forces might be taught in the science area, so you might want to include some science when you’re talking about Design and Technologies. But it’s important to keep in mind that...in Design and Technologies that you need to be solving a problem, a need or an opportunity, so working through the Creating Designed Solutions strand as well.

Then you’ve got Food and Fibre Production. Which, as I said, is about agriculture, or similar to agriculture and horticulture, with forestry included. So, this focuses in on food and fibre, as either human-produced or harvested resources, and how food and fibre are managed...or produced in managed environments, such as farms or plantations, or harvested from wild stock. You may have a school garden that you can use as a great resource, you might be teaching in regional Victoria and have access to farms for students to explore, or you might just be growing some herbs in your classroom. Or you might be focusing in on fibre, in terms of whether it’s wool or cotton, in the sector as well.

Food Specialisations is where it explores the application of nutritional principles and the characteristics and properties of food, food selection and preparation, and contemporary food issues. It’s important to note that this context is underpinned by healthy eating, so the Australian Guide To Healthy Eating should be forming the basis of your work with Food Specialisations. So, the bulk of your, I guess, design thinking needs to come from the plant-based foods, so the foods from the vegetables and legumes, as well as the grains section as well. It’s important to keep in mind that it’s about food preparation, but about contemporary food issues as well, as it comes through. It’s important not to demonise food as well, because sitting off the Australian Guide To Healthy Eating is eating small amounts, so the plant-based oils are foods that need to be consumed every day in small amounts, as well as the discretionary food that sits off, and that is food that’s meant to be eaten in small amounts sometimes. So when you’re thinking about your planning for this context, it’s important to go back and look at the Australian Guide, and the bulk of the foods are coming from the plant-based foods, i.e., as I said, the vegetables and legumes, as well as the grains and, to a lesser extent, the meat, the milk and other dairy products, and the fruit as well.

And the final context, we’ve got Materials and Technologies Specialisations. So, this one explores a broad range of traditional, contemporary and emerging materials that involve extensive use of technologies. So, again, you might be looking at the woods, the metals or the plastics and designing some products there. You might be looking at some of the materials, textiles and fibre or you might be doing some jewellery making, etc. So all those things fit under Materials and Technologies Specialisations.

I’d like to emphasise that you don’t need to teach each of these separately. They can be incorporated together, and I’ll show you some examples. But again, it’s a school-based decision about how you teach the Technology Contexts. And, depending on your skills, your strength, your school’s resources as well, which ones you want to do separately, which ones you want to teach together, which ones you want to combine in a cross-curriculum activity, etc.

So, the Technology Contexts involve students creating quality designed products across the four different Technology Contexts. So you may...as I said, you may have a school garden. You might have school animals as well that can be involved in some of the contexts linked into Food and Fibre Production. You might be creating some schoolyard equipment or furniture from recycled crates and so forth that could be done as an activity for your students. You might be doing some circuit work, or you might be making some food products. So, again, it’s deciding which ones you’re going to teach and how you’re going to teach it.

The final strand is Creating Designed Solutions, and this is where the sub-strands of Investigating, Generating, Planning and Managing, Producing, and Evaluating can be taught in terms of hands-on learning as well. So, with Investigating, this is about students investigating the problem. So, it involves them critiquing, some exploring and investigating needs and opportunities. So, if they’re going to make a product that is low in sugar, they might be doing some investigating about what foods are high in sugar or what foods contain natural sugars, such as fruits and berries and dates, etc, or foods that help with augmenting sweetness, such as flaked coconut or cinnamon. But they’d do some investigating, so again, in this example, I’ve just got a nutritional panel, and you might take the students through that activity, depending on their skill level and so forth. Or you might just do something as simple as tasting different berries and deciding which ones taste sweet, which ones are not sweet. So students are doing some of that critical thinking – “This berry is sweeter than that berry,” or, “I can’t determine which one is sweeter,” etc. So what you’re getting them to do is investigate some of the issues linked to the problem or need or opportunity.

The next phase is about Generating, and this is where students develop and communicate ideas for a range of audiences. So the problem might be to make a fruit salad that has...that is made from sweet fruits. So you get them to investigate which fruits they think are sweet, or which ones they think are the sweetest. Then they generate ideas about which ones they want to put into their fruit salad – and just to go back to the problem, they’re going to make a sweet fruit salad full of colourful fruits, so they need to have different coloured fruits. So then they start generating some ideas, so the students might think, “Well, I’m going to put blueberries with apple, I’m going to do a Granny Smith apple.” It’s probably not a sweet one, but might have a bit of greenness there. And then they might have a bit of banana for a different colour there. So, again, they come up with some ideas. That’s one idea. Another idea could be to have pineapple, watermelon and then raspberry. So that’s another example, Perhaps not the... I’m just thinking the raspberry and the watermelon would be both red, so I might want to change that to cantaloupe. So you’re getting them to think about design options and coming up with options that meet the brief, but there’s no right or wrong answer, but you’re helping them come up with ideas or generate ideas. We want some of that creative thinking, as well as critical thinking coming through about the different colours and... “Maybe I’m going to peel the apple,” etc, but then you might want to say, “Well, I want to include the peel, because that would be better in terms of nutrition,” etc. So they come up with ideas and they communicate those ideas.

The next step is about Planning and Managing. So, you’re getting them to do some thinking about, “What do I need to do to make the fruit salad that I’ve decided?” So out of their...with the generating the ideas, they might come up with two or three ideas and then decide which one they’re going to make, and that becomes their preferred option. Then they work through how to plan and manage the time, along with other resources, to create their designed solution. So they have to think about, “Well, I need to have a chopping board, I need to have a knife, I need to have a bowl,” and then they need to work through the steps. What would they do first? You would actually have to chop the fruit before you put it into the bowl. You wouldn’t put the fruit into the bowl before chopping, etc. So you might want to talk them through the steps, and then talk about planning, about how much time it might take. So you do some of that simple planning and managing.

And then the students actually follow the work plan and they produce the fruit salad, in this example, by applying a variety of skills and techniques to make designed solutions to meet their specific purposes and end-user needs. So then you need to think about your students and safety and requirements of making that fruit salad, and who is going to be responsible for certain tasks, and so forth. But they make the salad.

Then the final stage, or the final stage listed here, is Evaluating, so making judgements through the design process about the quality and effectiveness of the designed solutions. So it doesn’t necessarily happen at the end, but in this case, we’re going to evaluate the fruit salad, so that’s one way of evaluating. So you might get students to taste the fruit salad, and to give it either a smiley face or a neutral face or a happy face...or a sad face. But the evaluating could be occurring throughout the process. For example, when they’re doing their investigating, they might do some evaluation there of the different types of fruit. Or even with their ideas – when they’re generating the ideas, they might be doing some evaluation as well. So keep that in mind. It’s not necessarily a linear process. But you may start with teaching in a linear way, so students get that understanding. and then you start incorporating the sub-strands in different elements and so forth.

But when we’re talking about creating designed solutions, and that design thinking, they follow through those steps there – Investigating, Generating, Planning and Managing, Producing, and Evaluating. Now, you don’t necessarily need to teach the steps every time you want to produce something. For example, you might just make a salad and then you get the students to evaluate the salad. Or you might go through and start investigating, generating, planning and managing, producing, and evaluating. But keep in mind, it might get repetitious if you did it all the time, but you might focus in on a couple of the strands, when you’re teaching some content, with that hands-on learning.

Also important for Design and Technologies is a focus on Sustainability, and if you look at the curriculum – Sustainability – there are three dimensions. You’ve got environmental sustainability, social sustainability and economic sustainability. In the F–6 curriculum, the focus is primarily on environmental sustainability. However, at Levels 5–6, you will see that social sustainability becomes important as well, and is required to be taught.

So, when you’re talking about environmental sustainability in Design and Technologies, there are lots of examples. And these are just some examples that I’ve just highlighted in the images. You might be, if you’re doing Food and Fibre Production, focusing in on food waste and minimising food waste, but how that can be done through composting. You might be talking about mulching, you might be talking about the types of plants you are growing that are drought resistant or better in certain environments, and so forth.

For Food...and Food Specialisations, again, minimising food waste, you might be talking about the amount of plastic on certain foods, but it’s important to note not to demonise plastic, because plastic serves a purpose in terms of actually minimising food waste. But then you might be looking at, “Well, are we using too much plastic?” and, “What do we do with the plastic?” and how we can recycle it. But keep in mind that plastic is an important material we have, but it’s also about using it wisely and also about recycling it. Because some foods would deteriorate and become wasted if they weren’t in plastic, and keeping some of that in perspective as well.

You might be talking about recycling of products, you might be talking about bringing clothes in from an op shop and repurposing it, you know. You might be finding material from an old dress that could be made into a cushion, and so forth. So some of those things are really important for Sustainability.

And with social sustainability, you might be focusing in on the importance of local farmers’ markets and the importance of connecting in with the producer of your food, and that connection is so important. And social sustainability, as I mentioned, is something that you would teach at Levels 5–6. And economic is taught at Level 7 onwards.

Also critical to Design and Technologies are the types of thinking. We have Design Thinking, Systems Thinking and Computational Thinking. So when you’re teaching the Technology Contexts, you would also naturally be talking about design thinking – so, the use of strategies for students to understand design needs and opportunities. So you would be giving them some ideas and support to help them with that creative thinking, with that critical thinking. It might be something as simple as looking at a product and determining the amount of salt in products, and doing, “Which one would be the better choice? Which one would have the lower salt content?” and doing some of that critical thinking, as well as creative thinking – helping students think outside the square. So you put in some strategies and maybe some modelling, some creative thinking. As I mentioned earlier, getting students to look at other products outside of the product that they are designing. Nature is a great way to help with that creative thinking, as mentioned.

Systems Thinking is important in terms of generation of ideas and decisions made throughout the design processes. And it’s important for the recognition of the connectedness and interactions that occur during the process. If you’re making a product, you might want to step them through what are all the steps that are required to make the product, and then you put them in order. So, what can be done first? What can be done concurrently? So if they were making a pancake, for example, you might say, “Well, you have to crack the egg first, and then beat the egg, before you put it into the flour.” You can’t put the egg in the flour first and then crack it, it just doesn’t work. So you step them through. And that’s an example of Systems Thinking. And a recipe is a great example, where you’re actually stepping them through the steps. Some of the steps can occur concurrently. So, for example, if you’re making a pancake, while the batter is sitting and resting, you can chop up the fruit to put on the pancake, for example. So that could occur concurrently. So, really, when you’re thinking about stepping through a process, you want to help them with that systems thinking that occurs.

And then you’ve got Computational Thinking. And this would be really relevant when you’re either doing your investigating or your generation of ideas or your evaluation, where you might have questions linked into calculating costs or testing materials, so there’s that computational thinking happening. In the brief, you might have to make a garment or a cushion or something, and it might only have to be no more than $5, so they’ve actually got to work through, “Well, I’m going to get the old dress from my cupboard. I’m going to buy some thread, I’m going to buy needles,” and then calculate how much that will cost. So that’s an example of computational thinking.

Of course, it would increase in complexity, from Foundation to Level 6, but as a teacher, you would have the knowledge of your students and how to teach and to support that learning in terms of their thinking. And it could be something as simple as testing materials that will float, as opposed to materials that will sink, and doing some of that thinking. If you want to make a little simple boat or something, you might want to work out which material would be best and doing that thinking there.

So, in summary, when we’re looking at Design and Technologies, we’re responding to a design brief that you as a teacher will give them, a problem that is quite open-ended, or an opportunity or a situation where there’s no one particular answer, and students have to work through their creating designed solutions to come up with their idea of a response to a brief. So you’ve got the design processes happening there, and then you’ve got production processes, where there’s that hands-on learning. So, that’s applied within a context.

And so, within Design and Technologies, for example, you might have in the Engineering Principles and Systems students doing some things such as filing or bending or joining or soldering, depending on your resources and the skill levels of your students. In Food and Fibre, you might have students mulching, harvesting fruit and veg, watering their plants or planting. So they are examples of production processes.

In Food Specialisations, again, you might have students measuring, steaming, chopping or sifting, for example. And examples of production processes in Materials and Technologies Specialisations, are sawing, cutting, sewing and measuring.

So, some of the production processes can apply across all of the contexts. Measuring is a good example there that would apply across those contexts. But keep in mind that the production processes are really about hands-on learning experience for students. So, when they do the design processes and the production processes, they create a designed solution, so they’re creating a designed solution there.

So, in summary, when we look at Design and Technologies, there are three strands – Technologies and Society, Technology Contexts and Creating Designed Solutions. So, how you teach it is really a school-based decision. And I’ll show you some examples of how you could be using the content descriptions from each of the three strands to deliver lessons in your classroom.

So, yeah, what does Design and Technologies look like in the classroom? ‘Cause there’s many different layers in Design and Technologies. I’ve spoken about the four Technology Contexts. I’ve talked about the Creating Designed Solutions, where there are three...sorry, there are five sub-strands. We’ve talked about Sustainability – that’s important – that goes across Design and Technologies. And I’ve spoken about the three different types of thinking as well. So we’ve got to think about, “Well, how does it all go in lessons that I’ll teach in my classroom?”

So, here’s one example, where you might be doing soft-circuit lessons, so some e-textiles. You might be getting students to use conduction thread and sewing, and putting some LEDs on fabrics, so when they close something on their fabric, it lights up. So, if you’re doing these activities, you would be doing Engineering Principles and Systems, and also Materials and Technologies Specialisations. You might get students to investigate e-textiles, you might be showing them examples of products in the...online and so forth. So again, you can link it back to Technologies and Society. And then you might get students to explore how the different types of fabric that they could use, or the different types of conduction thread and so forth, and come up with some ideas to design their little soft circuit. Of course, they could do planning, managing, producing and evaluating as well, if you wanted to. But this is just an example. When you’re talking about coming up with ideas, they might have to use something from an op shop, or something that’s recycled, so you can link in Sustainability. Get them to come up with their ideas – Design Thinking is coming in. And then Computational Thinking – working out what will work, what won’t, etc.

Another example could be setting up a school garden. You might have some lessons around looking at different types of school gardens that are available, or what vegetables are grown in the school garden, you know, from your research, so looking at Technologies and Society, looking at why school gardens are important. So these lessons could link in to Food and Fibre Production, as well as Materials and Technologies Specialisations, because if you’re going to be building gardens, you might be using different types of materials, whether it’s wood or metal, to help with your garden. And you might investigate whereabouts in your school that you’re going to create your school garden, or which pots you’re going to be using, etc. Then you might do some planning and managing about how to step through to create your school garden. And then you might create your school garden – you actually produce it. So when you are talking through all the issues, there’s Sustainability that comes into play about placing the garden so it’s going to be suitable for the plants, so the plants won’t grow – I mean, so the plants WILL grow, sorry! – and so that you could minimise water, etc. You might talk about mulching and the importance of mulching. You might even have drought-resistant plants. You might be looking at some indigenous plants to your local area that you could plant in. That would be important for Sustainability, because they are designed to grow in your local area. Designing the garden, coming up with design thinking strategies about how the garden...you know, what shape the garden will be, etc. And then systems thinking about the plan – what do you need to do to create the school garden? What are the steps in the process? So you can include all these elements in some lessons on creating a school garden.

Another example is, you know, you might be growing the food in the school garden, so you’ve already got a school garden, so you’re growing it, you’re harvesting the food and you’re cooking the food as well. So, again, this would link into Food and Fibre Production. But, in this case, it’s going to link into Food Specialisations. You might look at chefs from around the world that grow certain foods. So you might have capsicums growing in your garden, so you might be exploring about how...how capsicums are used in recipes and so forth. So, again, you’re linking into Technology and Society. You might then ask students to come up with ideas about how they can use capsicums. Generating ideas, whether, you know, they might be coming up with soup or a salad, for snacks, etc. Then you might step through the planning and managing. They produce the food item. And then they evaluate it as well. So it all links in there. So again, it has links to Sustainability. You might be growing foods in season, so there’s some Sustainability there. You might be doing design thinking, coming up with ideas about how to use the capsicums or the vegetables that you are growing and harvesting. Systems thinking, in terms of writing out your original recipe and following it through, and then some computational thinking, like if you’re going to be creating the recipe for five people, it will be different to if you’re going to be creating it for ten people, and what you would do around that. Keep in mind, with design thinking, when you are cooking food, it’s not just following a recipe per se, it’s actually coming up with their own original recipe – there’s that creative thinking that comes in there.

But you can see, by just growing, harvesting and cooking, doing lessons on that, it covers a wide range of Design and Technologies, and you can decide which parts you’re going to be teaching explicitly as well. So I’ve just given some examples there.

So, I’m just conscious of time. We have got the Victorian Curriculum website, which I’ll take you through just really quick... So, I won’t show you, we haven’t got time, but when you do get the PowerPoint, you can take it through to the Design and Technologies curriculum sitting on the Victorian Curriculum. It sits under Technologies there. So there’s lots of...I guess, like, ways to navigate that website, that that’s useful.

Also, keep in mind the scope and sequence. And I spoke to you briefly about the scope and sequence that sits on the Victorian Curriculum website. It’s a good summary, in terms of listing the content descriptions and the achievement standards under each of the bands for you to assess. So, that’s a really good resource to use. In addition, we have produced some resources to support you with your delivery of Design and Technologies, and there’s a lot of resources for this curriculum area.

We have curriculum planning templates, which help you, I guess, work with your colleagues, in terms of who’s teaching which content. And as I mentioned earlier, you might be doing some of the Engineering Principles and Systems through science, or you might be doing some of the Material and Technologies through science, or even the Food and Fibre Production, as well as Food Specialisations. There’s a lot of links with science. You might want to do some planning about which parts of the Design and Technologies will go with science, or which parts... Even Food Specialisations may go with Health and PE. So you can do some planning. So there’s some great planning templates there.

We also have some sample teaching planners that sit under the Planning section of the Design and Technologies curriculum. So, each of the planning templates includes links to some resources on the Department of Education’s Find Use educational resources page. These resources are available to all teachers, whether you’re in government schools, independent or Catholic schools, so they’re freely available. The teaching planners provide ideas about how to teach and use themes for each of the Technology Contexts. So it’s a great starting point. And they provide lots of examples of topics that you can teach, and just some ideas there.

We also have resources for cross-curriculum teaching. So if you are thinking about, or are teaching STEM-related topics, there are lots of...or some ideas there, particularly for Design and Technology, that design thinking coming through, in the STEM resources, as well as the home economics resources. We have units of work, as well as assessment tasks and rubrics, linked into how you can teach health and PE with Food Specialisations there. So if you go to this link here, there’s lots of resources sitting under the various sections there.

So, a couple of quick questions. “Do I have to teach Design and Technologies every year?” It’s really a school-based decision about when and how the Design and Technologies curriculum is delivered. So, for example, it’s listed from Foundation to Level 2, so you can make a decision about whether you’re going to teach it at Level Foundation, or whether you’re going to teach it at Level 1 or Level 2. Or you might do a bit at Foundation, and a bit at Level 2, but it is a school-based decision about how and when you deliver it.

“Do I have to teach all the Technology Contexts?” Students need to be taught each of the four contexts across each two-year band from Levels 2...the end of 3–8. I’ve written 2 there, but it’s 3–8. Keep in mind that some of the contexts can be taught together, and the examples I’ve provided you are some ways. They’re not the only ways there. So, yes, they do need to be exposed to it, but how you do it is a school-based decision. And as I said, there might be links to other curriculum areas where you teach it, for example.

I’m just conscious of time, so I’m going to see whether there’s any questions that people have come up with. If you’ve got a question, feel free to write it in. So, thank you. Thanks, Alicia, as well.

**Alicia Farrell:** No worries. Thank you, Leanne. That does bring us to the end of our formal presentation today. I would like to thank Leanne for presenting this fantastic session.

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