**Katerina Poropat:** Good afternoon and welcome to today’s webinar, Introducing the Victorian Curriculum: Design and Technologies 7–10. My name is Katerina Poropat and I am the project manager in the Victorian Curriculum F–10 Unit here at the VCAA. It’s my great pleasure to introduce you to the curriculum manager for Design and Technologies, Dr Leanne Compton, who will be leading our session today. I would like to thank Alicia Farrell, also from the F–10 Unit, who has done a lot of the work behind the scenes to make this webinar possible today.

So before we begin, we’ll start with an Acknowledgment 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’ll walk with us on our journey.

So before we get into the presentation, 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’ll notice that a Q&A box has been set up, so please use this to put your questions and comments in, as this will help us ensure that we don’t miss any of your queries and we attend to all your 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 in a couple of ways. Firstly, we may type a 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 Resources web pages under the Professional Learning Section. A copy of the recording and the PowerPoint will also be emailed to participants in the coming days. So without further ado, Leanne, I’ll throw over to you for our presentation.

**Leanne Compton:** Thanks, Kat, and thanks for that wonderful introduction to today’s webinar. And thank you, everyone else, for coming along. I know it’s always busy in a school day, and to come along to this webinar, it’s fantastic that you have made the effort to do that, so thank you.

For today, we’re going to go through and discuss the Design and Technologies curriculum from levels 7–10. So what I will do is unpack the Design and Technologies curriculum at levels 7–10. I’ll discuss ways to use the Victorian Curriculum to deliver content in Design and Technologies at secondary level and also provide you with some links to a range of resources that we have available on our VCAA website to support the delivery of the 7–10 Design and Technologies curriculum.

So I’ll start by just going back to basics and having a look at where Design and Technology sits in the Victorian Curriculum. You’ll know that the Victorian Curriculum is made up of learning areas and capabilities, and Design and Technologies sits under the Technologies, and there are two Technologies curriculum areas. You’ve got Digital Technologies as well as Design and Technologies. So today we’re focusing on Design and Technologies.

So when you are looking at the Victorian Curriculum, you’ll notice on our website that we have an introduction to Design and Technologies and we have the Design and Technologies curriculum. And often what we find is we just want to go through the curriculum and have a look at the levels or the band descriptions. We want to find out the content descriptions and the elaborations, and also look at the achievement standards. I would just emphasise that the introduction is also a really important starting point, as well, to getting your head around the Design and Technologies curriculum. In the introduction, it will give you an overview of the rationale and aims of the Design and Technologies curriculum. It will talk about the structure, talk about where the strands and sub-strands are in the Design and Technologies curriculum, as well as the placement of standards. There’s information about learning in Design and Technologies.

There is a really great summary of the curriculum in terms of the scope and sequence. It actually summarises, or just puts into a table form, the content descriptions and the achievement standards from levels F–10 there. And also it has a glossary. And the glossary will provide some descriptions of terms that are unique to Design and Technologies curriculum. So terms such as "designed solutions", it will go through and explain what a design solution is. So in Design and Technologies, students will create products and what they create is a design solution, or they will create an environment or create a service. So that’s used...the term "designed solutions" is used in that way. So it’s really good to read through the introduction just to go deeper into understanding the rationale and aims behind the Design and Technologies curriculum. So as well as looking at the curriculum per se, it’s also good just to go back and have a look at those elements of the introduction to the curriculum.

So, today, when we talk about Design and Technologies, I’m just going to remind you that we talk about curriculum areas. So, Design and Technologies is a curriculum area within the F–10 curriculum. There are strands and sub-strands in Design and Technologies, content descriptions, elaborations and achievement standards. So we’ll start talking about those terms and putting them into a context and describing them.

So, when we look at the structure of Design and Technologies, you’ll notice it has band descriptions, and this provides an overview to the content descriptions and achievement standards within the band. So, Design and Technologies is typically written across a two-year band. So you’ll find from Foundation to Level 2, we have a band description. And then from Level 3–4. 5–6. 7–8. 9–10. So because we’re focusing in on Levels 7–10, we’ll be looking at the two bands at Level 7–8, which is one band, and Level 9–10, which is another band.

Each band has content descriptions, and the content descriptions specify the content that is to be taught – the knowledge, the understandings and skills that students are expected to learn. So the content descriptions are the mandated content that needs to be taught across the band. So you don’t need to teach all the content at one level, but it must be taught at that band. So it could be taught, some of it could be taught at one level, one year-level, and another content could be taught at another year-level.

We also have elaborations, and these are linked to the content descriptions. The elaborations are examples or illustrations of ways the content descriptions could be taught. So they just give you, as a teacher, ideas for ways to teach the content. The elaborations are not mandated, and you can create your own elaborations to support the content descriptions. So, the content descriptions are mandated, the elaborations are not.

We also have achievement standards for each band, and the achievement standards describe what students are typically able to understand and able to do, say or write at each standard. So they describe the expected achievement and emphasise the depth of conceptual understanding and the sophistication of skills for each band. So, the first achievement standard starts at Foundation to Level 2, and then we have achievement standards at Levels 4, 6, 8 and 10. So when we’re looking at secondary schools, you tend to focus in on the achievement standards at Level 8 and Level 10. But you would be also looking at the achievement standards at Level 6 to see that progression of learning, because some of your students might be at the level below Level 8, which is the standard Level 6, or some of them might be above Level 10 as well, because you’ve got that progression of learning.

So, unpacking Design and Technologies – it’s really important to note that Design and Technologies is about how we create products, services and environments, or how we create the design solution. So students should be creating designed solutions in Product Design and Technologies. And those designed solutions, as I said, could be a product, could be a service, or could be an environment. Products could be students making a food item or they could be making a table or an outdoor setting. Environments – perhaps a garden, if they have school gardens. Could be a wetland. So some type of environment that they are creating. And a service could be if there’s catering that’s happening at a school, the students are providing that as a service. You will find in most cases, students will focus in on making products. However, there are lots of examples of environments and services that could be done as design services. So the students create their design solution that builds on the end-user experience to meet current and future needs in sustainable ways. So it’s important to note that there is an end user to the product, service or environment, and that sustainability is a really important part of Design and Technologies. And I’ll unpack some of the elements, or some of the dimensions, of sustainability shortly in this presentation.

Be aware when students are creating their designed solutions, it’s not just about making an appealing or an aesthetic or a functional thing, it’s also important for students to focus in on creative design thinking and critical design thinking when they are creating their designed products. So, as a teacher, you should be putting strategies into place for students to think creatively and to think critically, and you may even want to work with the general capability of critical...creative and critical thinking, because that goes really well with design thinking. But it’s important to note it’s not just about making a product, it’s about making a product or a service or an environment that is different, so that creative thinking comes into play. So the example there is there might be lots and lots of black umbrellas, but in this case there’s a red umbrella that is different. There’s some difference with that. And that’s what students need to think about when they are creating their design solution. What is different about their design solution? So what creative design thinking has happened? What is being taught to the students to enable that creative design thinking and also the critical design thinking that comes with it? It doesn’t happen naturally, and so there needs to be teaching strategies to support students to think creatively and to think critically.

When you are teaching Design and Technologies, students will be responding to a design brief, and this happens at Levels 7–8 as well as 9–10. When you get to Levels 9–10, you’ll see in the content descriptions that students will also be developing their own design briefs, as well as responding to design briefs. So, in most cases, students will be responding to a brief that you have provided them. But then there will be opportunities in the teaching program for students to create their own design brief, so you need to provide that support in terms of them having the skills to develop their design brief – so coming up with what the issue is, why, the who, the where and the when related to the design brief. And that design brief is responding to a problem or a need or an opportunity. So it’s not just about, "Oh, I’m going to make a table." It might be that they need to think about some outdoor furniture for a balcony, and so that what the students come up with would require creative thinking as well as critical thinking, and it would require them thinking, investigating and thinking about options. And what students come up with wouldn’t all be the same ideas, because they are using their creative design thinking strategies and critical design thinking strategies.

So, for example, you might be looking in…you might have a problem that, you know, “What is the best types of soil to grow a certain plant?” And students might need to look at doing some investigating about different types of soil and which plant grows the best in those soils. You might be exploring, you know, what are the best shapes for certain products and looking at different ways of...you know, the shapes of balls, and which one would bounce best for the purpose of your problem. Or you could be looking at nature. And nature is a great example for students to think creatively. And if we look at the next slide... It’s good to actually get students to have a look at ways that nature has influenced design today and asking students, "How did the kingfisher inspire designers to solve an issue with the design of the Japanese fast train?" And you might want to go in and have a look a bit more about this issue, where the engineer that was...well, one of the engineers with the design of the Japanese fast train realised there was an issue with the train travelling through tunnels and the amount of noise. And this engineer happened also to be an avid birdwatcher, and what he realised was the shape of the kingfisher may influence the noise level of the trains going through tunnels. And when they did all their investigating and generating of ideas, they came up with a train design that is very similar to the shape of the kingfisher, and that tended to solve the noise issue of the trains travelling through the tunnels. So here you can see that the engineer didn’t look at other train designs to come up with a solution, he actually looked at nature to come up with that solution. So when you’re doing that investigating of design problems, often it’s better to look outside of the product that you’re trying to design to get your design ideas. And nature is a great way of looking at...looking for solutions, or one way of looking for solutions there.

So, going back to the structure of the Design and Technologies curriculum, just to recap, we have one learning area called Technologies, and we have two curriculum areas – Digital Technologies, and Design and Technologies. And we’re focusing in on Design and Technologies today.

Design and Technologies has three strands – Technologies and Society, Technology Contexts and Creating Designed Solutions. These strands don’t necessarily need to be taught separately, and they can be integrated in your teaching program. So let’s have a look a bit deeper at the three strands.

Technology and Society is focusing in on how people use and develop technologies. And the example I gave you about the Japanese fast train is one example that you could use to address or to teach Technologies and Society, looking at different designers and what they focused in on and how they developed solutions. And when we’re talking about "technologies", it’s often a term that we use a lot that we don’t really think about the term. And we often think technologies is about digital technologies. But really, technologies is a way of thinking or an approach to thinking, and it also is physical tools and equipment. So, in Design and Technologies, a hammer is a technology, food is technology, a knife is technology. So when you’re thinking about technology in that broader range, you’ll realise there’s lots of examples or ways to explore how people use and develop technologies.

When we look at the Technologies Context, there’s four contexts that need to be taught in Design and Technologies. And they’re based on design thinking, design processes and production processes, typically addressed through a design brief. So the four areas you’ll be looking at are Engineering Principles and Systems, Food and Fibre Production, which is similar to agriculture and horticulture, and includes forestry in that, Food Specialisations – that is underpinned by healthy eating – and also Materials and Technology Specialisations. So here you can look at wood, metal, plastics, textiles and other types of emerging fabrics or products as well...materials as well.

And then you’ve got the third strand, which is Creating Designed Solutions, so this focuses in on the characteristics and properties of each of the four Technology Contexts I spoke about.

So let’s go a little bit deeper with each of these three strands. So, as I mentioned, Technologies and Society is looking at ways that we use technology today, and you might even look at something as simple as, you know, the movement of air and fans, and then look at where fans are, how we use fans in our daily lives. And then you might even look at how fans have evolved recently into bladeless flans...fans! Sorry, I’m getting a bit tongue-tied there. Fans. And looking at the reasons behind bladeless fans and how they work as well.

When you’re looking at the Technologies Contexts, as I mentioned, there’s four of them. Engineering Systems and Principles – so this looks at forces, how they can be used to create light, sound, heat, movement, control or support in systems. You may find that Engineering Principles and Systems might have lots of links to other curriculum areas or learning areas, such as the sciences, and it might be taught through the sciences. Or you may find that you can teach Engineering Principles and Systems with another one, another context – for example, Materials and Technology Specialisations. You might be doing a unit of work on soft circuit or e-textiles where you’re actually using conduction threads with fabrics, or you might be doing Engineering Systems and Principles with wood and metal. So there’s a range of ways that you can teach the Technologies Contexts.

Food and Fibre Production, as I said, focuses in on food and fibre as human produced or harvested resources, and looking at how food and fibre are produced in managed environments, such as farms or plantations, or harvested from wild stock. So there’s both food and fibre there that you would be exploring. It could be taught as part of a kitchen garden program with Food Specialisations, and it doesn’t need to be an extensive Food and Fibre Production happening. It could be just a herb garden or fruit trees that you have in your school. Or you could be teaching Food and Fibre with other curriculum areas, for example, the sciences could be another example where that could go in as well. But you need to have the design-thinking lens when you do teach about Food and Fibre Production, and I’ll talk about that in a moment.

Food Specialisations is about exploring the application of nutrition principles and the characteristics and properties of food, food selection and contemporary food issues. As I mentioned, it’s underpinned by healthy eating, so the bulk of your Food Specialisations content needs to be taught through the lens of plant-based foods, because if you think about the Australian Guide To Healthy Eating, the majority of the food from that is telling us that the majority of what we should be consuming is from the cereals and grains food group, as well as the vegetables and legumes groups. So those two groups together form a large part of healthy eating, and it’s important to use the nutritional principles when teaching about Food Specialisation.

The final context is Materials and Technology Specialisations, and this is where a broad range of traditional, contemporary and emerging materials can be explored that use...that involve an extensive use of the technologies. So students might be looking at particular woods or metals, plastics or a range of different types of fabrics there. You might even be exploring the emerging fabrics, such as odourless wool products where they don’t even need to be washed any more. You just need to hang it up in the shower just to get some steam to air it and so forth. So there’s a range of materials that students can be exposed to when looking at Materials and Technology Specialisations.

So the Technologies Contexts are really about students creating quality designed solutions across the four different Technologies Contexts. So, on the screen there, you can see some examples of products and environments. You might have, as I said, a school garden or school chickens, etc. You might be making some outdoor furniture from some old crates. You might be looking at some circuit systems or making some nutritious foods as well. So it’s about them creating designed solutions. You don’t need to teach the Technologies Context separately. As I said, you can incorporate them and teach them together as well.

So, when you do teach Design and Technologies and Technologies Contexts, you need to think about the design process that underpins Design and Technologies. The Creating Designed Solutions is a strand that takes you through the design process. So there are five sub-strands to this strand. So you’ve got Investigating, Generating, Planning and Managing, Producing, and Evaluating. Each of these subs-strands don’t need to be taught in a linear way, and they don’t occur in a linear way. But keep in mind that you need to teach students about the design process and how the elements go together.

So, with Investigating, this is about getting students to do some critiquing, some exploration of ideas, needs and opportunities. So what you want them to do is actually to explore the problem that they’ve been presented with through their design brief. And this is where some critical thinking will come into play as well. So, students might be looking at nutritional value of food and there’s some thinking going on about what ingredients they could use according to the nutrients, and that will be linked back into a design brief. The Investigating could be students collecting primary data – so actually going out and investigating, whether it’s different types of materials, they could be doing testings on the materials, finding out the suitability of certain woods in terms of strength and durability, in terms of cost, in terms of colour, etc. They might be going and interviewing end users, you know, finding out what colours, fabric, you know, they like, or what the feel of a fabric they like, so they can get some primary data that way, as well as secondary data, where they can get that from doing internet searches or finding other references that provide them with the information. So it’s important when you are teaching students to investigate that they understand the difference between primary, or firsthand, data and secondary data, and using combinations of both. It doesn’t mean they need to do equal amounts of both. Some problems may lend themselves more to gathering primary data, whereas other problems, needs and opportunities might lend themselves more to secondary data, but it’s useful and important to teach students about the different types of data and the different ways to investigate their problem, need or opportunity.

Once they’ve done their investigating, they can start generating ideas to help solve their problem, need or opportunity. So this is where students need to come up with design options and then they need to communicate their ideas to a range of audiences and they need to work out from their design brief who are the end user, and even get feedback from the end user. And this is where their creative thinking will come into play in terms of them coming up with creative design ideas, but also critical thinking in terms of identifying the key ideas that they need to communicate.

Students can do Planning and Managing, and project management is an important part of Design and Technologies. So students need to be taught how to plan and how to manage their time, along with how to use, you know, how to identify resources that they need to use and so forth to effectively create their designed solution. So in the Generating stage, when they’re communicating their ideas, they would have communicated their preferred option, and from their preferred option, they then need to generate an idea about a time plan. Of course, it won’t happen just naturally. You need to do some teaching to support students about learning to plan, learning to manage time, and learning to manage the other resources to develop their preferred option.

Students would produce their preferred option in the Producing stage, and part of the Producing stage may be students doing prototypes, doing some testing and modelling. And you see how now this comes back into Investigating because they might have come up with a combination. For example, they might have been making a quiche and coming up with different vegetable options, and then getting feedback about whether those vegetable combinations work, or the timing of how long they said the quiche is going to cook for, or whatever works, so once they produce it and do some prototyping, they’ll need to do some evaluation to see whether it works, but also then do some further investigation when they’re modifying and tweaking their final product. Keep in mind, with Producing, that students, if they follow a dress pattern that’s already been developed by a commercial company or a recipe that is found online or it’s their grandma, grandfather’s favourite recipe, that’s not design thinking. That’s just following a recipe. What students are doing when they are creating designed solutions is coming up with their own unique response to a problem. So you’ve got to think about design thinking as more than just creating something. It’s about students doing something differently and therefore teaching them that creative and critical thinking. So when they do produce, they’re applying a variety of skills and techniques to make their design solution to meet their specific purpose and also the end-user needs.

And as I mentioned, there’s also evaluation that’s important, and this is about making judgements throughout the design process. So when they’re doing their investigating, they might be doing some evaluation. When they’re generating, they might be doing some evaluation as well. And even Planning and Managing, they might be evaluating, you know, their timing and how well things are going there.

And their producing as well. And that’s where they’ll talk about the quality and effectiveness of designed solutions. So the evaluation could be self-reflection. It could be something that they speak to orally. It may be on a Likert scale where they have from "agree" to "disagree", or could be a hedonic scale, which is the example here, with the happy face, neutral face and the sad face. So, there’s a range of ways to evaluate. But keep in mind that the design process – Investigating, Generating, Planning and Managing, Producing and Evaluating – helps with that design thinking, but it doesn’t necessarily mean it needs to be taught in a linear way, but you do need to teach each of the sub-strands to the students.

It’s really important to realise that sustainability is really critical to Design and Technologies. It’s evident throughout most of the levels and it’s applicable right from Foundation up until Level 10. Keep in mind at Foundation to Level 4 that environmental sustainability is being taught to students, so when they’re coming into your classes at secondary school, students should have a really good understanding of environmental sustainability. So think about going back to the content descriptions and also having an understanding that students will have a good understanding of sustainability, environmental sustainability. They also would have started learning about social sustainability at Levels 5–6, so they should have some understanding of social sustainability. So when you are teaching them at Levels 7, 8, 9, 10, you would be focusing in on economic sustainability as a new concept, as well as teaching them about environmental and social that they would have had experience at the lower levels.

Sustainability has three dimensions. There are lots of examples throughout Design and Technologies, and I would be here all day giving you lots of examples. But it’s good to have a reflection on looking at, you know, composting and food waste are examples of environmental sustainability, recycling, and even what the materials could be used for. And in Design and Technologies, you may have products that you want students to redesign or redevelop or re-use. You might be bringing in clothing from op shops or old, you know, crates or things for students to repurpose into new products and so forth.

When focusing in on sustainability, it’s important to realise that often we tend to demonise plastic, and plastic in terms of food products, it’s quite rife when you think about all the plastics that you would have on food products. But keep in mind it needs to be a balanced discussion, because plastic on some food products helps with minimising food waste. So there’s that tension there between plastics playing a role in minimising food waste and also having too much plastic on food. So it’s good to have some discussion when you’re focusing in on your issues to do with environmental sustainability.

Social sustainability, you might be looking at the roles of, for example, in this picture, farmers’ markets and how farmers, you know, farmgate sales and so forth helps to that social sustainability, helps keeping money within the community and people feeling connected and people knowing where their food is coming from and being part of that community. And you think about maker spaces and repair shops and those type of things that are happening in little communities as well, and the importance of that social sustainability.

And economic – thinking about that tension between profit and making money and things like that. So you want to make sure that economic sustainability is an important aspect to consider.

So when you look at sustainability, you should be looking at it through the lenses of the three dimensions. But some dimensions will be more...will have a greater influence on some of the products or services or environment. So, for example, you might be focusing in on environmental a lot and just touching on economic and social. And that’s perfectly fine, because they won’t be always equally weighted in terms of the problem or the opportunity or the need that you’re working with.

Also, there’s types of thinking that are important to Design and Technologies. So there are three types of thinking – design thinking, systems thinking and computational thinking.

So, design thinking, it’s about the use of strategies for understanding design needs and opportunities, so really getting students to think creatively and critically. And as I mentioned, those thinking techniques need to be taught explicitly to students. So you might be using graphic organisers to help with them thinking creatively. You might be modelling some creative thinking or showing them examples of creativity to help them with their creative thoughts. Likewise with critical thinking, you might be having some graphic organisers to help with them thinking about an issue critically, you might be modelling it in the classroom, you might be showing examples to them. But it’s important to really emphasise to students that in Design and Technologies that creative and critical design thinking is important.

You also need to think about systems thinking, that there’s a generation of ideas, and it’s about decisions made throughout the design process and the recognition of the connectedness and interactions. So when students are, for example, creating a recipe, creating their own recipe, they need to write down what steps occur first, second, third, fourth. So that’s an example of systems thinking in terms, "I need to... If I’m going to make a sandwich, I need to butter of the bread first. I need to chop the vegetables to put in the sandwich. I need to then put the vegetables in the sandwich." You can’t put the vegetables in the sandwich and then chop them.

So they’ve got to think about the processes that occur there. Some of them might be happening simultaneously. So you might be able to chop the vegies and butter the bread. So if you’re working in a partnership, someone can do one and someone can do the other. So that’s the type of systems thinking that occurs. And even with production plans and those types of things for wood, metal and plastics, when they’re making a unique table, you would step through the steps for them. Keep in mind that... I’m going to go back to Food and Production plans. There’s no purpose for students to rewrite out a recipe in a production plan, because all they’re doing is wasting time in writing out a recipe. A recipe is the actual systems thinking that occurs. Why they need to write out their own recipe is because it’s brand-new, it’s unique to them, so they’re creating their own systems thinking in that way.

There’s also computational thinking, and lots of examples, particularly when you’re working with materials, whether it’s food, metal, plastics, you know, even gardening, calculating costs, calculating...testing materials, etc. So they’re all that thinking that goes with it. And a lot of that will happen within the Investigating stage as well.

So when you look at Design and Technologies, you’ve got the design processes and that creative and critical thinking, you’ve got the hands-on learning – that’s so important, the actual doing. And I really want to emphasise that Design and Technologies is about hands-on learning, so students can demonstrate a lot of their understanding and knowledge and skills through doing and making. So you could just be observing what’s going on in the classroom and determine that they’re meeting the achievement standards. So when you’re thinking about assessment, it doesn’t need to have students just writing lots and lots of words. Because it’s a hands-on subject, they can demonstrate through the doing. So remember, it’s what students do, what they say, what they make or what they write in terms of assessment. So, Design and Technologies really lends itself to that hands-on approach in terms of assessment.

So, with the production processes, it really depends on the context. So, for example, in Engineering Principles and Systems, you might have students soldering, joining, bending, filing. But Food and Fibre Production, you might have the mulching, harvesting, watering, planting. In Food Specialisations, you might have them measuring, steaming, chopping, sifting. And in the Materials and Technology Specialisations, you will see students sawing, cutting, sewing, measuring again. So you can see measuring is probably a production process that could apply across all of the Technologies Contexts – design processes, production processes, and they create their designed solutions, so they are creating their designed solutions. And it’s all linked to responding to a design brief.

So just to go back and just recap, we’ve got Design and Technologies, one curriculum area, and we’ve got three strands. The first strand, Technologies and Society, has no sub-strands. The second strand, Technology and Contexts, has four sub-strands, each of those for Technologies Contexts. And then you have the third strand, Creating Designed Solutions, which has the five sub-strands, which is the design thinking that comes in.

So how does all this look in the classroom? So it’s really important to actually look at a curriculum, because it’s the curriculum, and then you need to work with your faculty, with your school, to work out which content you’ll be teaching and how you’ll be teaching it and where you’ll be teaching it, whether it’s at Level 7 or Level 8 or whether it’s going to be Level 7–8 together, etc. So it’s really important for that curriculum planning to occur.

So what does it look like in the classroom? And these are just some examples of possibilities, and the possibilities are endless. You might have a textiles unit on upcycling. You might have students bringing a garment they want to upcycle, or they bring in op shop clothing or whatever. So you might be looking at designers that upcycle. So therefore, you’re covering off your Technologies and Society. Because it’s textiles, you’d be fitting it into Materials and Technology Specialisation, so you’re teaching this context. And then you might be getting students to investigate ways that they could repurpose, for example, their old school jumper, for example, and then you might be getting students to generate ideas, and you explicitly teach the investigating and the generating. And that’s what you’re going to assess them against. Of course, they might go on and plan, produce and evaluate. That’s fine. But for this unit, you might decide, "This is what I am going to teach explicitly and assess." Of course, when you are teaching that, you would be incorporating sustainability. You might be looking at, you know, upcycling as a way to be environmentally sustainable. You’ll do design thinking in terms of generating some ideas and computational thinking – you might be looking at the cost of...how much each design option you’re coming up with will cost. You know, "I’ve got the school jumper, but I also need to buy some other fabrics or buy some other materials," etc. So you can see where some of the thinking comes into play as well as the sustainability.

Another example is you might be doing a soft circuits/electronic textiles unit. And again, you might be looking at examples of soft circuits that are available and perhaps are sold, or where soft circuits are available. So you’re looking at Technologies and Society. Because it’s soft circuits, you would be including electronic principles and systems, as well as Materials and Technology Specialisations. And again, you might be getting kids to come up with ideas to generate...to investigate and generate there, or you might even get them to plan, produce and evaluate as well. You would be linking into sustainability. You might be talking about using materials or repurposing materials, so there’s some environmental sustainability coming in there, coming up with design thinking and computational thinking because you are doing some investigating and generating ideas there, calculating costs.

You might have a food unit, a home economics unit, and again, you might even also link this into Health and PE, but I’m not going to go into that today, but just keep that in mind that there’s lots of opportunity to teach food and nutrition content from the Health and PE that goes so well with the Food Specialisation. But in this unit, we’re just doing home ec and we’re going to focus in on perhaps a kitchen garden program where the kids, or the students, have some herbs growing and then they’re going to use those herbs in some Food Specialisation activities. You might be looking at Technologies and Society, looking at famous kitchen gardens around Australia. You might be looking at famous chefs that use particular herbs and spices, etc. Then you might get students to do some planning and managing in terms of perhaps even planning how to design their herb garden, or they might be planning how to make their herb dish – they produce it and they evaluate it. So, again, you might be talking about sustainability in terms of seasonal herbs, so what herbs are available at this time of the year that you’re doing this unit or what herbs are indigenous or spices are indigenous to my area, ‘cause you might be growing some indigenous herbs and spices. You’ll be doing design thinking in terms of coming up with your unique idea of using those herbs and spices, systems thinking in terms of the planning and managing, so creating your new recipe, for example, or computational thinking in terms of costs and so forth.

You might have a materials unit on wood, so again, you might be exploring where wood is used throughout society, you might be looking at famous…or people that are craftsmen and so forth. You might be investigating the different types of woods that are available and the cost, planning and management, coming up with an idea and then producing it. So you’ve got that sustainability, design thinking and systems thinking threaded throughout. Or you might even get them to build planter boxes from old crates that you have around, so getting students to repurpose some of the material, or you might be creating planter boxes that are going to be used for the herb garden that will be used in the other unit that we were talking about. So, again, you’ve got Food and Fibre Production because you’re making planter boxes that you’ll grow the herbs in, you’ve got the Material and Technology Specialisations, and you might be getting students to come with ideas about how to design the planter boxes, generating their ideas, and again, because it might be for the school, you might need to consult with the principal or the other students, getting their feedback about the design of the planter boxes, and working out what is the best solution or what is the most popular solution or what is the most economical, according to your design brief, doing that planning and managing where your systems thinking is coming into play, producing them and then working out what worked, what worked well, what do you need extra to do, etc, as well.

So there are lots of ways to think about how the Design and Technologies curriculum can be taught across the band. And it’s important when you are looking at it that you do your mapping. So when we... And I’m just going to go back. So there’s no point if the planter boxes is taught at the same level as the home economics unit. There’s no point in teaching and assessing planning and managing if it’s done in the home economics unit. So that’s where you need to be talking with your teachers to say, "Well, this is the content that I’m going to be teaching and assessing." It doesn’t mean that you can’t use that in terms of...students might do some investigating and generating. But what you’re going to do as a teacher is explicitly teach them planning and managing, producing and evaluating and assess it, because once it’s been taught and assessed, there’s no purpose in teaching it again. But what students can do is to apply the understanding that they’ve learnt from the home economics unit into their other units, and other content can be taught and assessed there.

So, just to remind you that the Victorian Curriculum has its own website, and as I mentioned, we have got the curriculum sitting on the website, but also read the introduction to Design and Technologies to really understand the rationale and aims. And there’s lots of searching you can do on the curriculum website, and you can do filtering according to, you know, levels and so forth. So go back and have a look at the Victorian Curriculum website.

We also have a range of resources to support you on the Victorian Curriculum website. We have Scope and Sequence, which I talked about earlier, where you have... It’s a really good summary of the content descriptions and the achievement standards from Foundation to Level 10. So when you’re teaching at a particular level, it’s so important to look at the content and the achievement standard prior to the level you’re teaching at, because you’ll find that some students, you may be assessing them at the standard below what you’re teaching, so there’ll be that spread, or there might be students at the standard above, so always look at the content and the standard below and above what you’re teaching at to see that spread in your students.

We have a range of resources for Design and Technologies sitting on our website. We have the curriculum planning templates. And as I mentioned, Design and Technologies is one of those... I really like Design and Technologies, but it’s a more tricky study in terms of there’s so many elements, so it’s important to have that communication with the teachers that teach Design and Technologies, because often you’ll find that there’s several teachers of Design and Technologies. Some might be focusing in on foods, some might be focusing in on metal or engineering or wood. So those teachers who are teaching at the same year levels need to be having that communication to work out who’s teaching which content. So there’s some great curriculum planning templates to help you with that. And also it should be done at the school level as well, but I would start at the faculty level first.

We have a range of sample teaching planners as well. So for each of the technology contexts, we have some ideas of themes that you could teach for Engineering Principles and Systems, for Food and Fibre Production, for Food Specialisation and for Materials and Technology Specialisations. And those examples are from Foundation to Level 10. And there’s at least... I think there’s four or five themes and ideas for you to explore. So we have also created a FUSE resource page, which is the Find Use Search Educational resources that is housed on the department’s website. The FUSE resources pages are accessible to all teachers, whether you’re in government, Catholic or independent schools. And that page has a list of resources and links to clips and websites for each of the technology contexts. So well worth exploring the sample teaching planners.

In addition, we have some cross-curriculum resources. Design and Technologies sits well with other subjects in terms of being able to be taught together. So we have some home economics units that are written from Foundation to Level 10. Each of those units of work includes an assessment task and a rubric to help with you setting the assessment and the rubric, and you can modify it to suit your school needs as well. Keep in mind that those resources, we’re actually going to be developing some student work samples to show you that progression of student learning for each of the assessment tasks. So there’s more work coming with that, those home economics units. We also have some STEM units for you to have a look at, and some of them have Design and Technologies explicitly taught, so it really underpins a lot of the STEM teaching approaches where that design thinking and that problem-solving is so critical. So those resources are sitting there, on the website.

Plus we have some career education resources. So these were developed last year, and you’ll notice that they are written for each of the technology contexts across each of the bands. So there’s a range of resources there for you to have a look at with a focus in on the technology context and then ways that you can add value in terms of career education, right from Foundation to Level 10, so there’s a wealth of resources sitting there for you.

So that’s me in a nutshell, and I know you’ve got Kat and Alicia there, so there’s my contact details, but I’m going to hand back over to Kat to see the questions and so forth. But thank you for listening, everyone. Thanks, Kat.

**Katerina Poropat:** Great. Thanks, Leanne. So that does bring us to the end of the formal part of our presentation today. I’ll just quickly take this opportunity to thank Leanne for that wonderful session. And thank you all for attending as well – we hope you took a lot away from the session – as well as Alicia for the behind-the-scenes work that she does do.

So we did have a couple of questions that did come through during the session that I’ll read out now. And if anyone else has any other questions, please make sure you put them in the Q&A box because we can answer them now. Alternatively, you can email Leanne or the F–10 unit, and we can address any queries that come through at a later stage or that you think of later.

So the first one is a generic one that will be useful for everyone to know. So the PowerPoint presentation and recording – that will be emailed to our registered participants over the next few days, so you can expect that shortly.

Question for you, Leanne – can you please provide some more examples of social sustainability in foods?

**Leanne Compton:** OK. I guess it’s also about safety and occupational health and safety and wellbeing. So there’s all those examples that you can use, and even in terms of, I guess, making sure people are being safe within the work environment, well-being of working in a team and even possibly custodianship of land as well, and Aboriginal people being able to grow the foods that they want as well. Yeah.

And just to remind teachers that the four contexts, I often get a query asking whether they need to be taught at each year level, and the answer is no, but they need to be taught at each band level. They don’t need to be taught separately, but they need to be taught explicitly at each band level, so within that two-year band. So keep that in mind. And the curriculum planning documentation and the website we’ve got is really useful to help you do that planning to realise how you can make links to other curriculum areas or learning areas.

**Katerina Poropat:** Wonderful. Thanks, Leanne. So we haven’t had anything else that’s come through the Q&A box, so that will bring us to the end of our presentation now, and we hope that you all enjoy the rest of your day. Goodbye now.

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