**Leanne Compton:** Hello, my name is Leanne Compton, and I'm the Curriculum Manager for Design and Technologies at the Victorian Curriculum and Assessment Authority. The VCAA has developed a series of on-demand videos for teachers of product design and technology to support the delivery of the curriculum and their assessment programs in 2021. This video you're about to watch is related to unpacking the School Assessed Task criteria 1–4.

Simon Van Dillen who is a state reviewer for Product Design and Technology, will take you through this presentation. So thank you Simon for that and over to you.

**Simon Van Dillen:** Thanks Leanne and welcome everybody, and thank you for taking the time to watch this video, and I know your students will certainly be very supportive of that, the time that you've given up. Also too, I hope that we get through these videos, we answer most of the questions that you might have around the SAT and especially criteria 1–4.

We've broken this into two-part video series, so we've got Units one, criteria 1–4, and then there's a second video on criteria 5–9. We felt that if you had to sit and watch criteria 1 through 9, that it would be a bit of a slog, so, I know know it would be for me too. So here we have start off with just the IP comment regarding this presentation that we're doing.

So the first thing that we need to look at is our current study design, and making sure that each teacher and our students are working from this current study design. So the accreditation period for the study has been extended and now expires the 31st of December 2023. Assessment, sorry, administration information for School-based Assessment for 2021 can be found on the VCAA web page, and I've got the link there. So you can pause this video and then jot that down. But even just going through the website you will be able to find information there.

Okay, so the School-assessed Task. It's for Units 3 and 4, it contributes to 50% of the students study score, and it's commenced in Unit 3, and it's completed in Unit 4. The mandated assessment criteria are published annually, in the Product Design and Technology study page in the VCAA website, and notification of the publication is given in February within the *VCAA Bulletin*. I believe if you to the website there you'll find that information there. Okay.

Teachers are also required to undertake the authentication records form, and there's another video about authenticating work, and that goes through that, but there's another part of the School-assessed Task that you're undertaking that authentication record form as you go through. And students, sorry, teachers should be aware of the dates for submission of scores for the SAT. There is a series of scores due in June and the remainder due in November. There's another video on how to rank students, and how to assess the school-based criteria, assessment, sorry, the SAT criteria. There is another video on that. We won't be going through that in this video, this one is just really unpacking what each criteria is asking the students to do. The earliest dates that SATS can be returned to students for 2021 is the 5th of November. So it's a very important date.

Applying the product design process. So let's look at the Unit through. Outcome 3. On completion of this unit, students should be able to document the product design process used to meet the needs of the end user, and commence production of the design product. So the nature of the task. The student's required to produce a folio, and the folio's comprising of the following sections that you can see there.

Okay. So let's look at SAT assessment criteria 1. Criteria 1 is the skill in developing an end user profile, research, and sorry, end user profile, research, a design brief and evaluation criteria with reference to the product design factors. So the indicators here, identifies a design problem, conducts primary research, develops an end user profile, develops a design brief, identify evaluation criteria with reference to the product design factors, and writes evaluation criteria that reflect the design brief, and criteria to evaluate the final product is written in four parts. Okay, so let's unpack this.

So identifies a design problem. So when we're looking for a design problem, and a lot of students, unfortunately their first thought is, I want to make this, and this is what I want. They've already got in mind the solution before they've even looked at a problem. So as teachers, we need to be really pushing them towards what is the problem, that they are trying to solve, or what is the need that they're trying to solve. And really steer them towards, is it a local, is it a national, is it a global problem? And really bring them right back to that purpose there. So they're identifying that problem, and then they link it to one of those three, that would make it easier for them.

They conduct primary research. So they're looking at real people, and they could use things such as surveys, questionnaires, interviews, observations. That when they're conducting that primary research they're actually using real people. And develops an end user profile. So is it a single end user, or is it a multiple end user? It might be a single end user that will be using the product but they might design the product or the need might be actually for a group of multiple end users. So when they look at the local problem or the national problem, and have conducted research, they actually realize that, hey, there's more than one person has the same and so their actual end user profile looks more at a group or multiple end-users, or a group of end users versus just a single end user. And students might be able to find that a bit of way of being able to get lots of data and information on the way through, for their research and feedback as they go along, versus a single end user.

So it's working with the cohort, working with the student and going, okay, what sort of profile are we're going to have? We're going to bet on an individual or we're going to have more of a target market or a larger group, and what works for them. So when they actually do this, develops a design brief, so it explains the context.

We need to explain the context. It sets out constraints and considerations, explains the expected quality, and it needs to be realistic. We have year 12 students or Unit 3, 4 students, isn't necessarily year 12, making these products. They shouldn't be the expected quality of a manufactured level, or to something that you would purchase perhaps, okay. That they are expecting the quality is realistic to what they would get. And I make sure on the design brief that they're addressing the product design factors. So we broke this down, we did see a set of constraints and considerations that linked to the context, explain the context to tell the story around the problem, what's the problem about? Explains the expected quality and addresses the product design factors in there.

And then we've got the next one is, identifying evaluation criteria with reference to the product design factors. So really if the student has pointed out that that particular product design factor is important to the design brief, or there's constraints and considerations they've got, they should be looking at writing criteria that reflect those products design factors that those criterias for later on in reference to them.

Okay. SAT assessment, he writes evaluation, this is the last part of it. Criteria 1, the last part of criteria 1. Writes evaluation criteria that reflect the design brief, criteria to evaluate the final product is written in four parts. Looking at these, you sort of have two sets of criteria. You're going to have evaluation criteria used to select a preferred option, which is not four parts, which is that part that... and then you're going to have criteria that is used to evaluate the final product which are four parts. Now, nice locally, the first lot, the non four parts, would come from the second lot. So the products that you've used, the crit, sorry, the criteria that you are using to, the students are using to evaluate the final product is quite substantial, and links to all constraints and considerations, you would use some of those to, we use those to actually write the ones for the preferred option as well. So in that case, but you might not use all of them. And that's what is sort of broken up here that the criteria that you write for the final product, not all of those will be relevant when deciding or selecting a preferred option. Some of them wouldn't be relevant. You know, if a student wrote a simple one, if a student writes the product must be produce... was the product produced by the due date, well you're not going to use that to select a preferred option. They really should be providing design options that they know can already be made by the preferred date. So you wouldn't be selecting your preferred option based on that. So that might not be one that you use for the selection of the preferred option. So that's criteria 1. That's what we're expecting the students to have done there.

Okay, criteria 2. Skills in conducting research and communicating developmental work. So the indicators are here. Identifies relevant research areas, conducts primary and secondary research. Gathers feedback from the end-user, demonstrates the relationship between the research and a range of developmental work, generates visualisations using appropriate annotations, and identifies and acknowledges appropriate intellectual property. And I guess that first indicator which we'll go to, and the second is, identify relevant research. It's really, that word relevant, is really important when it comes to this. Just 'cause a student produces a heap of research, if it was not relevant to their design, or to the design brief, then why is it there, would be the question that you'd be asking that student. Let's go to the criteria.

Identifies relevant research areas. Okay. So the product design factors, they'll be looking at those. They might do things like produce a research plan using tables. They might create a mindmaps here, or other graphical organisers, moodboards, things along those lines. So we want to clearly see that the student has identified the areas that they're going to research, and the relevant research to it. And these types of things that can help them be steered in the right direction there. But they, you know, linking back to the product design factors to start with, what are their choice and then build their areas of research off that.

Conducts primary and secondary research. Students may need to be taught how to do both these types. And this is an important part. I think students may know how to do secondary research really, really well, because they've done it over years now, by the time they get here, but conducting primary research maybe not so much. And they may need to be guided on this, not assisted in doing it, but being taught how do you do for primary research? How do I undertake primary research? Teaching them that, being explicit in that teaching, and then allowing them to go and do it. And then the other part is gathers feedback from end-users. So this helps to guide the developmental work, the feedback can be written, it can be recorded, it can be online. It can be however they want to go about it. It can be for the end user, the number of users there. Like say, if they choose to have multiple end users and have an end user group or a target audience, or multiple people being able to give feedback and that's great data that they can be using in conducting this research. It gives them a lot to... That data is really important because when you look at the assessment of those criterias, and there's another video which talks about how to do the ranking, and how to actually apply the assessment criteria, it talks then about how you need that, students when they're explaining something versus describing or outlining. And that explaining is around having that additional information to be able to put in there, and that's how they can get to be trained to be a very high, high, medium students, how do we do that ranking there? So it is important here how to get that feedback from end users can support that student in that area.

So criteria 2 demonstrate relationship between the research and a range of developmental work. So explains why the research is relevant, and what has been learnt. So by cutting slabs of information and putting it in there, and you can look, again that might be important, but what's the relationship between it. Was it there? What has been learnt? How this would affect the developmental work? What has been ruled in or ruled out? I guess one way that I explain it to my students is it's a bit like a funnel, and at the top you're slowly trying to funnel it down. so you get to your preferred option. So to start off with here, we're trying to, okay, we've got all our areas that we're going to research, what are we learning from this? What are we ruling out, that's getting us further down so when we do further development, and we're getting to where drawing sort of things that we've got it, getting our funnel down a little bit further. So that's what we're looking for here. That they're explaining the research and why is it relevant and what they've learnt from it. Generates visualisations using appropriate annotations.

So throughout the research, the student should be showing little visualisation. So there might be explosives of creativity or innovation. So they're saying something, they can have done a quick sketch about it all, or they've got this, say an image, and then they have done some annotations around that, and they've done and explained why that's important and how it's going to help or what it's going to rule in or rule out. These little explosions of creativity, innovation, going through the research, will then help guide their future visualisations. The end user can be looking at these visualisations now and going, yeah, I'll like that. Please keep going in this direction, or now I can see what you're doing there, now let's stop that, let's go on this direction. So that's what this sort of visualisations is doing, is it's sort of pushing, giving, I guess, helping with that funnel. It's starting to break that down a little bit more.

The last part of the criteria is identifies and acknowledges appropriate intellectual property. Now this needs to be accepted conventions, okay. Students should follow their school's preferred referencing system. You may need to teach your students how to actually reference. They may not have been taught or not know what the school uses. So this might be something you have to actually explicitly teach. This is a referencing system that ASCO prefers to use. This is how you're going to have to reference all your sources of information. So this is how you reference a web address. This is how you reference an image. This a reference a journal entry. This is how you reference a webpage whatever that might be. Just recording URLs on a page, and having a whole page at the end of this URL or on each page, under each image, or under each bit of text, that's not appropriate acknowledgement of IP.

So when it comes to assessing this, you'll see on the assessment criteria, that accepted conventions comes in as a median. So they've this recorded URLs and go three or four pages URLs. They can't get even a median, they have to be getting a low, very low at this point. So it's very important that they are doing this. And yes, and teaching it from the start, making sure that they know from the start that they have to do this. Those of you'll have those couple of students in your class who will go, oh, I forgot about that, and then later on are trying to go back and fine do all their referencing to put it back in. So making sure that the students are doing that from the beginning.

So assessment criteria 3. Skills in developing creative and innovative design options, and ability to gain end user feedback and justify the preferred option. Users developed, sorry. Uses developmental work including visualisations to generate innovative and creative design options with annotations. I'm going to talk about that for a second before I go on to the next indicator. The innovative and creative, it's really important that the student does produce a product that falls into those two categories. And for a students to say, well, the end user doesn't want it to be innovative or creative, or the end user just wants it to be similar to something that's already on the market, just a different color, doesn't tick this box here. Which means that the student can't score highly through the criteria. And a student might need to actually say to the end user I'm sorry, I can't make this for you to begin with. Then they will identify this back in criteria 1 when they've come up with their design problem then, they should've come up with that then going, actually this design problem at this point. It's not going to allow me to be, there's been too many constraints. Not allowing me to have the ability to be creative or innovative in this.

So for those students that turn up on the day one thinking, okay, this is what I want to make, they're already behind when it comes to assessing 'cause they can't be assessed highly 'cause they haven't followed the developmental process correctly, and they're not going to be generating innovative or creative product. So being clear with the students then that they may have to... they really need to find that design problem or need that allows them to create an innovative and creative design options.

Indicator two. Identify, sorry. Identifies possible functions, and features, and materials, and production processes, evident in the design options, gathers end user feedback on the design options, and selects and justifies a preferred option in relation to the evaluation criteria and end user feedback. So let's look at all these again.

Develops, develops, sorry. Uses developmental work including visualisations to generate innovative and creative design options with annotations. So the visualisation should show refinement at this point. So we'd be looking at the visualisations that the students has done in the research part, and little ideas that they've got there. Then now grab a couple of those and then plan around with them a little bit more. Then still coming out with ideas and breaking off from it, but the end user has been able to say to them, yeah, go in this direction, or lock this direction, or lock that direction, to lock this. And they might have three or four different directions that they're planning around with at the moment, but they've also ruled out five or six others that the end-users gone now, let's not go on that way, it's not really what we're looking for. So they've been really, starting to refine those ideas a little bit more, and it's starting to get that funneling down, so to speak. There's a clear link between the visualisations and the future design options. And so it's really important here when it comes to especially when it comes to marking later, that you don't have a series of visualisations, and then the students drawing something that doesn't link at all. And unfortunately through the auditing panels and that they see this, and at times it happens in selection for seasons. The excellent stuff about that where there's great drawings, great visualisations and then great set of design options, but there's no link there. It's like, there's been a change in ideas somewhere, and there's no link between the two. Where has this idea come from, type of thing. There clearly needs to be those visualisations linked to the design options later on. There hasn't been a change of idea in between and the students going off on a different tangent.

Students need to be explicitly taught creative design thinking and techniques to generate innovative and creative design options. This is not something that's natural to everybody. And you need to spend time with those students, and go, okay, this is how you be creative, and this is how you'd be innovative, and these are some techniques that you can use, and spending that time with them. It's not just the process of, okay, you're up to this stage now, this is what you got to do. You got to create innovative design options. They don't know. You need to teach that first and needs to be taught to them how they go about that, and then they're able to apply that. Identifies possible functions, features, materials and production processes evident in the design options.

The design options need to reflect the design brief at the end of the day. And the design options have a connection to the visualisations and research, which I've already spoken about there. So you need to be able to look at the design options and then look back at the design brief and go, yep, this is the possible solution to that problem that the student has put forward to begin with. Gathers end user feedback on design options and selects and justifies the preferred option in relation to the evaluation criteria, and then use the feedback. So, students who look at doing, target audiences and that sort of stuff, and have a larger market or large group of end users, can really get some great feedback here about this, and it can support their justification of their preferred option.

At the same time too, a student who may only have a singular end-user needs to be encouraged to making sure that end user's giving them some really strong feedback and more than just, yeah, I like that or like this or this. Getting them to really spell out what they like so that student has got that strong feedback. And that's something when the students undertake these tasks that the end user, if it is a singular person, has to be aware that they do need to provide this information to those students as they go through. So yeah, this is real feedback. It can be written, it can we recorded, it can be online, et cetera. Having clearly used evaluation criteria at this point, too.

So they wrote those evaluation criterias in criteria 1, and now they're using these and applying these, and they'd go justify why this design option is the preferred solution for the design, need or problem. And how they've gone about in that justification of it. Some students here might use scoring systems perhaps to help them with that data, or that evidence to be able to give that justification. They may use qualitative research or support data, they're using that quantitative stuff as well which gives them clear evidence for them to use there as well. Good opportunities talk about that sort of data, in different ways, quality and quantity. Being able to talk to them about that and already start doing explicit teaching around that which is used later on.

Okay. Up to the last criteria. So in skills, in preparing working drawings, and schedule production working plans, including quality measures. Indicators here. Prepares working drawings, develops schedule production plan, demonstrates risk assessment and risk management. Okay. So when they preparing the working drawings, this is what we need to see. It needs to have the use of technical language and conventions. So it's what industry would use. The use of symbols and measurements. And once again, how industry would be displaying this information. Explains the product functions and requirements. So in the working drawings, there's information in there about the product function and how bits of pieces when they're put together, make those functions. Explains the materials and construction methods. Now, each of these areas don't need to be equal amount of information. Some areas might have more than others. But they're explaining, really at the end of the day, that particular working drawing should be given to anyone, but they should be able to make that product from that. Now student might have all that information on a plan, a student might have on a drawing, sorry the student might have the drawing and then a set of specifications next to it, with that other information that's required in it. How they want to present it is totally up to the student, but it should be in line with what is seen in industry. Okay. So, resistant material students and their set of working drawings are very, very different to what non-resistant material students would be presenting. But they should be of industry standard either way.

Okay. So develops a schedule production plan. And on page 24 of the study design, has there what's required. So the components of a production plan is a schedule work plan with timeline, production steps, materials, tools, equipment and machinery quality measures, an estimated time of complete processes. There's a risk assessment and there's material and costings lists as part of that as well. So you're going to make sure the student has each of those. If they don't, then they can't score very high later on. They need to have each of those parts there.

Okay. Demonstrating a risk assessment, sorry. Demonstrates risk assessment and risk management. So they need to assess the risk of materials, tools and equipment and machinery. Clear management for each of these risks, using the hierarchy of controls. I'm looking at that... Students need to undertake risk assessment risk management before any practical work can be undertaken. So this might not be just before they start production of their final product. This may actually occur earlier on in the pace, when a student is undertaking primary research. So even earlier on, they might have before now, actually had to have written a risk assessment because if they decided to do some process tests they decided to do a material test. And so they may need to provide a risk assessment as part of that, if they're using those tools and equipment. And you'd expect to see that in the folio.

And the other important one here too is the outsourcing and the use of the tools and equipment that they are following the guidelines of the Department of Education when it comes to restricted plant and non-restrictive plant, and what their requirements with the learning, that's required before those and the assessment of the student to be able to undertake that safely. So we want to know if the students have got that rule, especially around that risk management and how they actually undertake that risk management as they go through.

Okay. So hopefully I've answered most of your questions during that, and what's required, and I know at the start of the folio is quite big and there's a lot of parts involved. There will however be held a SAT information webinar, this will be held on Monday the 22nd of February, between four, sorry, 3.45 and 5:00 p.m. So if there's any questions, information clarification that you'd like, that haven't been covered in this webinar, please email it through to Leanne, before Wednesday the 17 of February, and we'll make sure that that's actually part of that presentation that night that all those questions have been answered. And so we're hoping that it means that night, that will be the time that you will give up that evening to do that. That all the questions that you have will be answered then. And if there's areas that I haven't given enough clarification to, you will get that as well.

So Leanne's email address is on there, but it's also on the VCAA website when it comes to the product design area. Like I said, any other further information please speak to the Curriculum Manager, which is Dr. Leanne Compton and the email address, as I said, you have to pause at the moment, write that down if you need to.

Thank you for your time. And yeah good luck.

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