**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. With me in this video is the outgoing state reviewer for VCE Systems Engineering, Colin Chapman, and the incoming state reviewer for VCE Systems Engineering, Chris Simpson. This video is one in a series of videos that the VCAA has developed to support teachers in the delivery of VCE Systems Engineering. This particular video will focus in on the School-Assessed Task and explore authentication and completing the authentication form. Over to you, Chris, thank you.

**Chris Simpson** - Ah, thanks, Leanne and welcome everyone. So yeah, as Leanne said, we're going to have a quick look at the School-assessed Task, SAT, and the authentication and appropriate authentication form that goes with it. So again, these relate to the SAT, which is Unit 3, Outcome 1 and Unit 4, Outcome 1, and the authentication record book that goes with it. So one thing to bear in mind, that the completion of the authentication record book, is a mandated form by the VCAA. And it allows you to note as the student progresses through various stages of it, of their project. So, if you are taking notes in an LMS [learning management system], you really need to transcribe them from that into the SAT authentication book, so that we have a record of any discussions, changes or ideas or concepts that the students have had as they've progressed through building their project.

**Colin Chapman** - It's important to remember also that this is a measure of progress throughout their project. So, feedback in the authentication form is important. It's also an open form, it's a document that the students are able to access, and take note of what you might have written as you go along.

**Chris Simpson** - And the interesting thing is with that, with the booklet as well, if there have been things that you've observed with the student as they've been working, then obviously if it's in that authentication record book, it will allow you to acknowledge that and work within the rubrics to award, potentially award, points for that. So, with the students, they need to research all aspects of their proposed production in detail, but the work undertaken for the record of investigation, design, planning and production, must be theirs. It has to be their project, it's not a collaborative project. It's not a project working with other groups outside of the school. So, bear in mind, that is one of the key things. And teachers are reminded that it's not appropriate to provide detailed advice, corrections or actual reworking of students' draughts or productions. So, no additional assistance from you. You can guide them, and maybe give them some concepts to explore, or areas to explore, but they have to come up with that content themselves.

So as to reiterate again, the SAT is not a group project, it must be students' own work with their own design and production work for the entirety of the SAT. So if they're writing down documentation and giving pictures or images that go with it, they also need to be able to produce appropriate content and record their investigation, design, planning, and production. This will form the basis of their authentication of their work. Any annotated references to proposed specs, processes or materials also need to be noted in the authentication of their work. This is-

**Colin Chapman** - And this is-

**Chris Simpson** - Sorry?

**Colin Chapman** - Sorry, this is an awesome opportunity in the feedback aspect of the authentication record, for the teacher to give feedback with regard to whether relevance to the design brief has been provided. The teacher isn't telling the student what to do, but they simply is suggesting that relevance needs to be demonstrated.

**Chris Simpson** - And this is probably one of the critical things with that document, is the authentication record form, is just to keep that up to date as you go along. So annotated design options are part of the student's record of their investigation, design, planning, and production. And it should be maintained and updated throughout the production process. It's not just a one-hit thing, it's that imperative cycle within our systems engineering process, where we go back and revisit things. And again, the student's records should be used in conjunction with that authentication record form. And it allows you to reference the student's proposed specifications, processes, materials, or components. And as Colin mentioned earlier, referring it straight back to that design brief. We can then say, 'Okay, you potentially would need to go back and revisit this because you need to reference the materials back through.'

**Colin Chapman** - And this also helps us remember that it's a record of evidence. And the record of evidence is broadly defined as evidence that shows achievement. Now that evidence can be audio, it can be visual, it can be image, it can be written, it can be a simulation, it can be a model, it can be an experiment. The students should collect all evidence of their progress as they're moving through their response to the SAT. And then they can offer that, in some form, as evidence for you to be able to place them on the rubric. And then you can use the authentication record form to make sure that you're checking in, in a timely fashion, as that progress is being recorded.

**Chris Simpson** - So again, we, as teachers, should have that ability to be able to see or cite and monitor development and the documentation that goes with our students' work on a regular basis. It doesn't specifically need to be put in a calendar, but checking in with that student on a very regular basis allows us to keep our authentication record form for the SATs up to date.

And it allows us to monitor and ensure that the student's work is on track and it's in progress. And it's got to be relevant again, and we can't state this enough, relevant back to that design brief. If students are using resources that are out with the school or their capabilities, they have to acknowledge those, and any unacknowledged work, must be work of their own.

**Colin Chapman** - So system engineering is quite unique in that we're intimately involved with the development of the student project throughout the whole year. So we're able to comment on a broad range of talents that the students bring to their completion of the SAT project. And we should take the opportunity to use the authentication record form to keep anecdotal records of those things that we see, that aren't necessarily captured in other forms of assessment or record-keeping.

**Chris Simpson** - With yours, Colin, do you have any good sort of hints as to how to, let's say a centralised record of authentication forms, or do you tend to make like a booklet, or keep them in a full file or something like that?

**Colin Chapman** - So security of these documents is quite important. So to have it centralised in some fashion is necessary. It's also necessary to keep multiple copies, so you can use your learning management system to do that. And I think keeping, I tend to keep, both a written as well as an electronic version of the document as we're going along, so that we have no issues with regards to things going missing as we make our way through the project.

**Chris Simpson** - That and the focusing in on security there, yeah, that is one key thing. It is an open document that the students can see, obviously only their portion of it, but yeah, bear in mind that there is that security side to it, where you can't show other people, other portions of it. And again, the forms can be ongoing notes of our observations or of the students, during their production cycle, as well as the application to the tasks at hand. So these things can be logged and noted in the authentication record form. And it is just an opportunity to present written information that will allow you to justify your decisions, that you've made for those students as they've gone through, or gone along the path, of making their SAT.

**Colin Chapman** - And it's part of that context marking isn't it? So, when we're going through moderation processes, looking at the documentation from the students alone, doesn't give us the same colour as the context comments that we might make as we're going along through the authentication record form. So, it does help us inform our decisions with regards to both satisfaction completion, which we know is the first thing that we look at, as well as level of achievement.

**Chris Simpson** - So yeah, so, Colin, yeah, it does. It totally encompasses those little conversations that you'd have with students during class time. Very much so.

So as the production work for the SAT occurs over a period, the forms can also help us keep record of how we've observed the students working. So again, when we come to our assessment, we can go back and revisit that, 'cause we're not going to remember all the observations that we've, recall all the observations we've made, but if we do have a note of it, then obviously we can go back to it. And things specifically relating to that, safe use of tools, equipment, machinery and safety measures, might not be clearly put out by the student in their SAT. But if we've noted those as we've been working through things, then obviously, we'd have a record of it.

**Colin Chapman** - And because it's a record of progress, there are some skills that the student may demonstrate in a progressively more competent manner. Let's say, use of safety procedures, when using a particular tool, that we may notice that they've naturalised that safety process. And because we've kept a record of that in the authentication record form, we're able to remind ourselves that that occurred, even though the student may not have noticed it themselves.

**Chris Simpson** - Yeah, I think the relevance to 3D printing with that one as well is quite good, where, they may have had two or three birds nests, and then come back and redone things. I don't know if your students have done that with your 3D printers, but they certainly have with mine.

**Colin Chapman** - Well, the 3D printer is an excellent source of disasters that students can use to demonstrate improved progress, with regard to skill development.

**Chris Simpson** - Absolutely. And again, the risk assessments, those sorts of things are dynamic as we're working through things. So, obviously if students are able to demonstrate that they're using dynamic risk assessment as they're working through, we can note that, and use those to give us an informed decision as to where they sit on that rubric.

**Colin Chapman** - And this also helps us to inform the students that there's a difference between stating the use of safety procedures, and risk amelioration and so on, and actually doing it. So when we observe the students in the actual demonstration of these skills, of use of tools or complex processes, we can give a meaningful commentary with respect to the actuality of risk management and so on.

**Chris Simpson** - So again, as we work through, we do have to, or the students have to acknowledge use of external support and equipment. And again, we can document those in our authentication form. And obviously, if we do have any questions arriving at complex processes that they may have used, that we feel that are outside the scope of either ability or machines, we can obviously follow that up. But note that we have created those as we go along. That's probably one of the biggest ones, particularly if we're looking at very complex processes.

Undue assistance and notice there, that that also comes from the teacher as well. So again, as I explained earlier, we can guide them, sort of point students in certain directions, but if we obviously create models and things for them, that is a huge no-no because that would be classed as undue assistance. And again, that external support has to be planned, and justified within their record, as part of their investigation, design and planning. And also the school has to certify that the support doesn't constitute undue assistance. So, that acknowledgement of getting the support, as well has it adversely impacted their project as it's gone on.

**Colin Chapman** - So the case statement here, is that the external support should form part of the intention building processes, criteria one to three, so it should be planned in. And some concrete examples of necessary external support would be where the student has to have some aspect of wiring to a voltage more than 115 volts AC. So if that's the case, then they would have to get a licenced A-grade electrician to perform that work, and that will be part of their planning documentation. And then that would be documented as necessary work because it's beyond the scope of their abilities, and also prohibited by law.

**Chris Simpson** - So their photos, photos as they go through. It's interesting seeing how many schools are clamping down on the use of mobile phones in classrooms. I feel in Systems Engineering, in Technology, in general, having a mobile phone in your classroom, as long as it's not a distraction, is a very, very useful tool, as part of your production process. It's the quickest way to get some photographic records, take your phone out, take a picture. They must be true and accurate representations of what the students are doing.

We can then authenticate that against their integrated and controlled system in the design brief, and we can also see whether they've been getting undue assistance in the process. And it ensures, again, that the students are all assessed equitably. If they have spent hours in your classroom, trying to get a circuit to work, what better way than a series of pictures as they've gone along with the various developments, and straight into their record of work. You can go into their book and say, 'Okay, I've observed them doing these things in class and there's photos to substantiate that record.' Again, all photos should be dated with when they were taken.

**Colin Chapman** - And that example you gave is just, is excellent, because the student is demonstrating a progress, in their skill, in building a particular circuit, and troubleshooting it, diagnosing problems, and then rebuilding or redesigning their approach to this circuit. That's informing our ability to make a judgement across a whole range of criteria for the SAT itself. And photos and video, very useful and this regard. And if the student turns on time and date stamping for those recording processes, that means we're able to authenticate the time that the images were taken as well.

**Chris Simpson** - Mm, I forgot about video, but video, yeah, is another really good one. And again, just remembering, that these are mandated things through the VCAA, and you have to follow them for all students' work in relation to their SATs. Should you be audited, you will be asked to produce these record forms. And also if the student would like their work to be considered for Top Designs, the Seasons of Excellence, for Systems Engineering, some of these authentication forms will be required for that. So, it's just really good, professional practise from us as teachers, to keep them up to date and seconding that, is that it is evidence of progression, with your student's work as it goes along.

**Colin Chapman** - And it also informs how through moderation, how we might change our approach to the SAT itself. So if we look at our authentication record comments, there are some clues there about how we might do things differently, how we might include the students in the conversations about how they can respond more effectively to the requirements of the SAT itself. So, it's good for the students, giving them timely feedback, but not undue assistance. It allows us to authenticate the work that they're carrying out, but it also, through in moderation processes, allows us to rethink how we might conduct our learning and teaching activities, regarding the school-assessed task in the future.

**Chris Simpson** - So looking at the pages from the school-based advice that comes out, early next year, you'll see the criteria form here. And again, it's very similar to the rubric, obviously without the not shown and the up to 10, but again, we can see where there are areas, that we can go and improve notes, observational dates, and then finally, we do have areas on the document, where the teacher and the student can initial that authentication task has been observed or recorded.

So the key box is that one that says, Authentication issues/comments, that's where we can have those robust discussions with the students and say, 'You know, your design brief states, X, Y, and Z, where have you addressed that within your documentation?'

**Colin Chapman** - And the student initial column there, emphasises that this is a shared document and it's for all concerned in order to improve their presentation of evidence of progress.

**Chris Simpson** - And again, a similar one here, you can make them accountable for their planning, or their system and again, as Colin said, with the initials there, they've acknowledged that there has been a discussion around these points. I think I may have jump forward too. So these forms are available in the online document that does come out at the beginning of the academic year, and it forms a school, teachers that based ... for school-based assessment.

And there are a number of pages at the beginning of it and then a series of documents at the end, that has rubrics and these authentication forms. So again, this one's, number 5 is really good because this allows us a chance to actually observe the students in action in the class, as they're building their things, so effectively, it could be one full term's worth of observations in that part in the box third from the right, and it allows us to also observe the development of skills. You know, as Colin said, they may have come along and the first time they've tried something it's not being quite as successful as they would have hoped, so we can start rewarding them as we see those skills progressing and developing over the course of that term, and the build of the project. That would be the 3D printing.

And again, the diagnostic testing and generation of data, and then obviously the subsequent interpretation and analysis of it as well. So again, if they've created tests, how have they gone about setting them up? Has it been done in a safe manner? Has it used the appropriate equipment that's available to them? Potentially, it could be that you observe one of their colleagues or one of the other students in the class doing the test to generate the data, to make it a bit more impartial. So you could prove those observations in that, Authentication issues/comments box.

**Colin Chapman** - Yeah, it should be noted as well, there'll be multiple times when the student is engaged in diagnostic tests. So there might be different aspects of the project, different subsystems and so on, that the student is looking at. So, there'll be more than one opportunity for a teacher to record issues and comments, and other observations. And you can also see progress across going from measuring different things in different subsystems as well.

**Chris Simpson** - So, could you use this as part of your intention as well, right back at the beginning? So if you've observed the modelling system there and expecting data out, would you expect to potentially see a small comment in here?

**Colin Chapman** - Absolutely and so it's important to realise that criteria 6, even though it's in that Unit 4 section, there would be criteria 6 activities happening, right from the beginning. In fact, it would be part of their criteria 1 and 2 investigations as well. So, this is important because it's also an opportunity for the student to get some early feedback on their ability to reflect upon their ability to respond to a design brief. Because the diagnostic test in itself is a response to a need, to be able to determine a response of a system.

**Chris Simpson** - System, yeah. Oh, oops, and we'll go back to 7. So again, obviously this is one specifically relating to the outcome of Unit 4, but obviously we can start to think about relating it back to other areas within it. So it manages production of a system. So if we've seen them encountering problems as they've been building, potentially, there could be little notes in here around that as well. And then obviously that use of the systems engineering process, as outlined in the study design earlier in the study design, we start linking us back potentially, to our observations that we've had for the first three or four criteria. And again, if we've spoken to the student as it's been ongoing, you may have a comment in here, that you've raised those and then see what the response has been from the student.

And as per the others, there will be a Q&A webinar following this early in Term 1, please refer to the VCAA February bulletin, with details for the date and how to register. If you do have any prior questions, please feel free to contact Dr. Leanne Compton, to get further clarification or information.

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