**[Leanne Compton]:** Hello, my name is Leanne Compton and I'm the Curriculum Manager for Design and Technologies at the Victorian Curriculum Assessment Authority. With me in this video is Colin Chapman, who is the state reviewer of VCE Systems Engineering.

This video is one in a series of videos to support VCE Systems Engineering teachers to moderate student work, and this video will focus specifically on moderation for VCE Systems Engineering.

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**[Colin Chapman]:** A continued strength of the VCE is a school-based assessment program, which is common to all subjects that are offered. The school-based assessment program for System Engineering has two elements. One is the school-based, school-assessed coursework and the other is a School-assessed Task.

The school-assessed coursework provides for the development of key skills through the exploration of key knowledge, as detailed in the areas of study. It should be remembered that this should be completely embedded in the learning and teaching activities that are undertaken to support this exploration and that these learning and teaching activities should be a conversation which informs the development of meaningful, school-based, school-assessed coursework processes.

The School-assessed Task provides for the development of a design brief and our response to that design brief, which contains intentions, processes, evaluation, and a record of evidence. Learning and teaching activities should scaffold, support and critically engage with the evolution of the School-assessed Task, to help the learners audit their own task response to the design brief so that they can ensure that they are able to respond to all aspects of the criteria that is mandated by the VCAA from year to year.

So, there are two school-assessed coursework activities. One is for unit three and it's outcome two, and it's discussing the advantages and disadvantages of renewable and non-renewable energy sources, and to analyse and evaluate the technology used to harness, generate and store non-renewable and renewable energy. This task allows for a broad range of responses from the students, right from lower order skills, such as listing, right up to higher order skills, such as justification and design. We need to ensure that our school-assessed coursework activities and the learning and teaching activities that it is embedded in, allow for this broad range of responses to outcome two for unit three. An effective moderation and purposeful moderation process allows us to determine whether our proposed assessment allows this broad response in line with the VCE principles of assessment.

The second school-assessed coursework activity is outcome two for unit four, and this is evaluation of a range of new or emerging system engineering technologies, and to analyse the likely impacts of a selected technology. It's important to know that in this particular outcome there is no correct answer. The word likely there is very, very important. We should be selecting stimulus material and stimulus activities and learning and teaching activities that allow the students to explore a broad range of responses, not just an answer to a question.

So, if we are looking at structured questions, they should be leading to a narrative approach to the idea so that the students can actually not only come up with ideas, but also critique their own ideas and engage in a conversation with their colleagues as they work towards their own personal response to the school coursework in this particular activity. To situate this activity, as well as for the previous activity on energy sources and so on, having a context, which is a field trip is a very valuable type of experience. Because not only do the students get an understanding of how a system might work, but they can talk to the designers. They can talk to the people who maintain the system. They can talk to people who have had to deal with some issues or concerns of the system as it's been evolved. These are all rich experiences, which will allow the students to develop a rich response to the school-assessed coursework in any particular year.

Now, moderation for System Engineering has to be an ongoing activity. Because we have to be sure that the sorts of activities that we are undertaking in our learning and teaching, allow the students to work through the systems engineering process, to use it in an agile fashion, and an iterative fashion.

You can see here the diagram from the study design, and it's important that we try to map our learning and teaching activities and the conversations and other things that we do with our students as we pursue the School-assessed Task, with these ideas of identifying, documenting, researching of feasibility and alternatives, design and modelling, planning, fabrication, integration, testing and diagnosis and evaluation reporting.

Purposeful moderation allows us to be more confident that the learners that with whom we are working are engaging with all aspects of the systems engineering process. Effective moderation activities allow us to engage with the School-assessed Task that our students are working on. The School-assessed Task effectively is a student's response to a design brief and that response should be governed by engagement with the system engineering process.

If we have an ongoing moderation process, we can use our deliberations and evaluations of progress to further engage the students in such a way that they can go and audit their own projects against the mandated indicators, criteria and levels of performance that are published by the VCAA from year to year for Systems Engineering. This allows the students to develop those strong skills that are expected to be displayed when they undertake criteria seven and eight, where they are reflecting on their ability to manage and evaluate, replan and carry out their response to the design brief using a system engineering process. This idea of using scaffolding activities for the students to develop skills, to be self-reflective and critical of their responses to design brief, is an essential element of our learning and teaching.

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