This is the fourth video and it is also the last one in the series of videos discussing how to develop a modelling and problem-solving task based on the Probability and Statistics area of study.

In this video, I will discuss how to develop task-related rubrics for the assessment criteria using the published VCAA criteria. The idea is that we don't write any of these from the task. We have a separate rubric and we'll look at the Outcome 1, Outcome 2, Outcome 3 proportions that VCAA has given us.

The number of available marks for the outcomes set by VCAA for the three Outcomes 1, 2 and 3 are 7, 10, and 8 respectively. Making up the 25 marks that this SAC is worth. Given the fact that in the first three questions of Part 1 is an introduction of the context, through specific cases or examples, it was a guidance with a touch of scaffolding, helping the students to understand and engage in the context for investigation through the specific cases or examples. Hence the mathematics involved and its applications should be familiar and routine. However, later parts were a bit more challenging.

I have allocated the marks in Part 1 for Outcomes 1, 2 and 3 to be 3 marks each to reflect the skills required, a more thorough and deeper look into the context and selecting an appropriate functionality or technology in a variety of mathematical contexts. In both Parts 2 and 3, students are required to develop and explore a model for a particular scenario with different constraints and conditions, which involve extending, and creating, and testing rules for formulas. And the context is explored in greater breadth and/or depth. As we know, these two parts are involved with open-ended work with some unfamiliar and non-routine aspects considered. Hence, Outcomes 2 and 3 in these parts weight more than that of Outcome 1. So as you can see from the PowerPoint, the marks given in the table reflect that what I have just discussed.

Similar to the previous videos where I discussed how to develop an application task and the modelling and problem-solving task one. I have also produced command terms with definitions. These command terms were used through the task and I wanted students to have a clear understanding of the expectation where they see these command terms in the SAC. I'm sure this list will not just benefit the EAL students but every student. For example, what does it mean to choose, to explore, to determine, et cetera?

Now, 7 marks are available in Outcome 1. Aspects of the task related to the criteria, this table is an extract from the VCAA website. It can be the starting point for us. We can fill this table in however we think is suitable. I gave a few examples in each criteria for your information, such as in Criterion 1, appropriate use of mathematical conventions, symbols and terminology. I have the following dot points. Appropriate and accurate use of symbolic notation in defining mathematical terms or expressions, such as the mean or variance of a linear function of a random variable. The second dot point, use of correct expressions in symbolic manipulation or computation in mathematical work.

Then in Criterion 2, definition and explanation of key concepts. Criterion 3, accurate use of mathematical skills and techniques, et cetera. Outcome 2, there are 10 marks available in this outcome. In Criteria 2 and 3, four marks in each criterion because that's where a lot of the investigation or exploration is happening.

And then Outcome 3, which is worth 8 marks. This outcome has two main criteria. One is on appropriate selection and effective use of technology and the other is the application of technology. Students are not just simply using the technology for routine calculation, such as finding the mean, the variance or the probability of a normal distribution but they must be able to use that technology to test their chosen values to see how changing one variable affects the features of the constraints and conditions given in the question.

A sample assessment record, which is available from the VCAA website for you to use as is or you can use it as a starting point for your own rubric. There are lots of useful resources available on the VCAA website. You can click on the Advice for teachers on the PowerPoint and it will take you to the page with a set of sample tasks, including the task that I have produced in the set of the series of four videos. And that brings me to the end of this set of videos about "How to develop a modelling or problem-solving task 2", based on Probability and Statistics.

I would like to thank you all for watching these videos. I hope that you will find these videos helpful and useful in developing your own modelling or problem-solving tasks. Bye for now.

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