Welcome back to the video regarding assessment in the construction of problem-solving or modelling task for Further Mathematics, Unit 3.

This will discuss how we might assess the responses of students throughout the problem-solving context that we've set up regarding investments. What you might look for as mapping items from that scenario into the development of the three outcomes across the two parts that were set up for this problem-solving or modelling task.

The idea of the outcomes being distributed between the parts, of course, will depend on an emphasis that you would like to place. So I've just put a random set of numbers into the two parts. You'll notice that I've emphasised part one over part two. Maybe I decided that part one was going to be the main part of this particular scenario. So I've just allocated a few more marks from outcome one, two and three into part one but you may decide to make part two the emphasis and you can certainly change these around in terms of the allocation of the outcome marks to each of the parts.

Of course, in developing the assessment strategies itself, really the rubric that has been given as an option through the VCAA website is the one that I'm utilising in the allocation of components of student responses to each of the criterion for the outcomes. Outcome one has three criterion, outcome two has three criterion and outcome three has two of the criterion. So trying to then develop an assessment rubric to match the responses from the students is really a strategy that can be done once student responses are in.

When you're developing the task itself, you might find it useful to jot down some thoughts of how their responses are going to be mapped to each of these criterion. But after you've then received the student responses, it's a good idea at that stage to go back and look at them and then develop a set of items for each of the criterion based on what you've seen in student responses. Sometimes they will change their pathways from what you expected, they will introduce information that you didn't expect and you can always build that into the assessment structure once their responses are in.

So in terms of the mapping, I'm just going to give you a couple of quick thoughts on how you might actually develop this. This is the outcome one that we're referring to. So it's a little bit about the structure of their responses, what they've used as conventions, the symbols, have they used the mathematical terminology correctly, have they used and defined key elements throughout, was the mathematics correct as they were going to solve particular situations?

And you'll notice that I've linked items to each of these. The use of notations for example, if that's been developed well then I'm going to allocate that to the mathematical conventions part. You might find that you've got a series of these items to allocate to each one but you'll notice for the problem-solving task, there's only one mark maximum for the appropriate conventions, symbols and terminology. So we're not talking about everything being absolutely exact across the entire task. There might be a few errors or anomalies in some of their writing, but predominantly if it's all there, then you can certainly allocate that particular mark.

The same for the second one, it should be reading criterion two. The explanation of key concepts, the idea of defining purchase prices, interest rates, repayment amounts, that's all important whether they're using a recursive relation or a financial solver scenario, each of these becomes important in terms of the construction of a response. So detailing all of that would be part of this scenario of explaining the key concepts that are involved. Certainly answers alone wouldn't do that. That might come into the accurate use of mathematical skills where they've got a correct answer but notice there's only two marks out of 25 that are actually allocated to the idea of correct mathematics. And I think that's an important part of your whole assessment that the 'correct mathematical responses' is quite a limited component of this particular rubric.

Then we go to outcome two and again, the idea of important information variables and constraints, it's defining values that might be represented in the different scenarios that you're using. Important information could be time periods, could be growth rates that are being used, percentage elements. What constraints are there? What limitations are there on rental returns, et cetera.

The notion of ideas and the mathematics that's involved, that just goes back to the dot points that were listed in the study design. Being able to link that content to their responses if they're setting up scenarios correctly, if they're working through methodology as you would expect, then that's good dot points for that particular criteria in place. The idea of analysing the results, summarising their overall findings is part of that analysis. What did they find when they purchased their international property after the four years? How much growth was there in the actually investment when they compared that to the domestic property or the shares, how did that rank up? So there's great options for the analysis as they work their way through.

And then of course, the idea of the technology being at the end, the technology itself, the functionality that's actually involved, whether they were able to use it efficiently. Did they go and use it when they were calculating monthly balances for the first 12 months or were they doing all that by hand? The effective use of technology certainly would be that they went to the calculator or computer and did some of those calculations. And then the application of technology itself using the financial solver is one of the options that I would certainly be putting in there and they should be doing that a fair bit. The technology component should come out as part of the responses that you're looking at from the students. What did they actually look like as part of the scenario as they went through and in terms of the rubric itself?

There's the rubric that I was looking at, I'm just simply developing each of the items within the outcome structure and giving more detail. And this is a great way to then allocate student responses. So out of the 25 marks, you're then looking at a global marking idea rather than 'piece by piece' working out whether it's right or wrong. That would be more of an examination style of marking which isn't suited to these particular tasks.

So developing the assessment is just as important as developing the question itself. So the notion of structure for these sorts of assessment rubrics is self-explanatory once you've got the scenario set up. I think it's far easier to try and mark them on these sorts of rubrics once you've given dot points and you know what you're looking for throughout. So that's a quick idea of how a modelling or problem-solving task can be set up in terms of context, questions, content and assessment for you to develop as part of your Unit 3 Further Mathematics work.

Thanks for coming to listen to these particular videos and good luck with the construction of your tasks. Thank you.

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