**[Kevin McMenamin]** - Welcome to this on-demand video that will provide information about the mathematical investigations of the VCE Foundation Mathematics 2023 to 2027 study. I would like to acknowledge the traditional custodians of the many lands across Victoria, which each of you are living, learning, and working from today. For myself and those of us in the Melbourne metropolitan area, we acknowledge the traditional custodians of the Kulin Nations. When acknowledging country we recognise Aboriginal and Torres Strait Islander peoples spiritual and cultural connection to country and acknowledge their continued care of the lands and waterways over generations while celebrating the continuation of a living culture that has a unique role in this region. I would like to pay my respects to elders past, present, and emerging for they hold the memories, traditions, culture, and hopes of all Aboriginal and Torres Strait Islander peoples across the nation and hope that they'll wall with us on our journey.

To support the implementation of the 2023-2027 study designed for mathematics the VCAA has developed a series of short videos called Information Bites outlining information and approaches that teachers may wish to utilise in the classroom. The information presented in these videos has been developed by current VCE teachers in conjunction with the VCAA and offer methods of approach without prescribing a course of action. Today's information bite will look at the investigations particularly linked to the Foundation mathematics course. The outline that the slides will look through is the assessment itself, thinking behind what a mathematical investigation might look like, and then any contact information or follow up you might like to undertake. The assessment itself is split in a 60:40 ratio with the heavier weighting going towards the investigations that will be undertaken by students within the course itself. Of course, this 60:40 split is linked to the unit three and four level.

The unit one and two level, which also has investigations incorporated into the course, is not linked to this particular allocation of marks it's only the three four level. Within the unit three and four level you would undertake two investigations within unit three or your first semester, one investigation in unit four or your second semester, so there'd be three undertaken across the entire year. The examination at the end of the year which would take place in the standard VCAA examination period would be a two hour paper and made up of multiple choice and written response answers that would contribute 40% towards the overall score for this particular set of studies. The investigations themselves are split into three components.

Three components are going to be a formulation exploration and communication task. The formulation is really trying to set up the context maybe looking for information getting some background regarding the question that's being asked, looking to service areas that might give you some of that information, being able to formulate it into maybe questions which from your community would be structured in some way that would give students an approach or a pathway to undertaking these investigations and then building on that particular use of data or information in the first instance. Once that information has been gathered and it's available and it of course you could be providing it as part of your tasks that you're undertaking these students would then explore that information.

They would then relate the work to content that's been studied throughout the course. Then being able to bring in the mathematics that's been linked to the areas of study that are part of the course and then trying to formulate some responses to questions that may have been asked, maybe some conclusions or directions of further study or investigation that would be the major part of the course application and content areas, and then communicating that in some way. The communication itself may take on a variety of approaches, and depending on your school community may look a little bit different for different communities. Being able to present it in some sort of a formal approach of a written type task might be worthwhile for some units or some areas of work, but other avenues might also be available, maybe a PowerPoint presentation possibly a video presentation, maybe the idea of an oral discussion or a presentation in front of a group of people, so the idea of the communication certainly would be explored a little bit more depending on the task that you've undertaken.

Really, the investigations in unit one and two do lead to the unit three and four and are structured in a similar manner. The only difference between the two might be a timing component, but certainly it would still cover the required areas of study. The investigations themselves could be introduced as a learning activity in the one two level. It could be an actual assessment task, it could be a combination of both. It could be introduced as part of just the general learning of the classroom and what that might look like. The time range is usually between one to two weeks.

The time period that you are linking it could be up to, two to four hours, somewhere around there maybe a little bit longer depending on the task. The idea of tasks themselves it could be a long task that you're undertaking. It could be shorter tasks or activities that you are looking at. How you set this up again, would best suit the community in which you are presenting the information and of course that will again change from community to community. The combinations and examples that you actually undertake really should be thought out as part of your course planning and how they would then be integrated into that teaching and learning under being undertaken. In terms of the investigations themselves they do perform a very natural and effective way of addressing outcomes two and three, the idea of computational thinking experimentation being brought into it assessment tasks certainly can be a useful way of getting students to work on these because over a period of time it's their communication and use of information that would then be an important part of the investigation itself.

It also then makes it quite meaningful in terms of any of the work that you might be undertaking to then link that content back to a practical situation regarding the mathematics. There are three of these tasks being undertaken at the three four level. The number of tasks at the one two level there should certainly be at least one in each semester and depending on the type of learning you might actually integrate a few more into those particular units. Of course, this being the longer of the tasks we are looking at. In terms of the tasks that you might look at, this is just a a sample of an idea of what might be investigated. This is looking at comparing house rentals and how that might be done. So the formulation could be trying to find a series of houses that are available for rent. This could either be done through the internet maybe it's a visit to a local real estate agent and looking at advertised units or houses or apartments that might be up for rent.

Looking at the information that's linked to them time periods whether it's stipulated, costs that would be involved and then trying to formulate this into some sort of a presentable form that might then be useful for the exploration. The exploration of phase, of course, could be down to looking at that data, whether it's a statistical link or a financial link, would then be dependent upon how you are introducing this particular investigation and then trying to form some sort of a communication back to a client. Again, this could be via a written presentation it could be an oral presentation, maybe in a a PowerPoint display, and so on.

So there's a number of ways that could actually be implemented. For a unit three and four level same idea. This is just a, a sample of an idea a context that could be considered the idea of heat being lost through certain surface areas being able to connect a measurement type idea to this particular scenario. How does dehydration occur? Looking at the formulation part, it could be looking for data and investigating that sort of data that might actually be useful what an investigation might look like. Some of the questions that might actually be posed as well. In terms of the assessment of this particular item or investigation certainly at the unit three and four level a rubric of some description and how that rubric might look like would certainly be part of your thinking and strategy. And depending on the presentation mode this would come into it as well but certainly the three outcomes need to be assessed via these investigations.

The allocations that you are looking at on the screen are for the unit three and four. It does change slightly between the two of them in the outcome waiting but essentially you're still looking at a total of 30 marks overall. Any more information regarding this short demand video you can go to Michael MacNeill, the Curriculum Manager for Mathematics, and he would be happy to communicate with you and have further discussions regarding any of this information. Thank you for joining me on this short on-demand video and good luck with the implementation of this course within your schools.

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