**Michael MacNeill** - Okay folks, welcome along to this webinar, we might make a start. It's gone four o'clock at this stage. My name is Michael MacNeill. I am the Curriculum Manager for Mathematics here at the VCAA, and my co-presenter tonight is Kevin McMenamin that some of you might recognise from some of these other webinars and presentations. We'll start as is appropriate with the acknowledgement of country. I would like to acknowledge the traditional custodians of the many lands across Victoria on 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 Islanders, people's 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'd like to pay my respect to elders past, present, and emerging. They hold the memories, traditions, culture, and hopes of all Aboriginal and Torres Strait Islander people across the nation and hope they'll walk with us on our journey.

Okay, so during the presentation, if you would like to ask a question, I would ask you to go to the bottom of your screen, where you should see a Q & A button. If you press the Q & A button, ensure that All Panellists is the one that you're selecting, so that we can see the questions and we'll endeavour to answer as many of your questions as we can during the webinar, all questions will assist us in preparing further advice for the study. And then, of course, if we don't get to your questions during the course of the webinar, then my details will be available at the end of the webinar.

Next slide, please, thank you. The general outline for all of these webinars is that we are going to outline the structural changes that are developed through the revisions of the study design and give brief background for the new structure of Mathematics in 2023 to 2027. We'll be outlining revisions to the framework for assessment and discussing how teachers can engage with assessments across units one, two, three and four. Some of you may have had the chance to submit some questions via the Qualtrics Survey and those will appear at the end, I've made sure that I've extracted a few of those questions, hopefully a representative sample, excuse me, of those questions and I will endeavour to answer those within the time that's allotted to us.

Next slide, thank you. So, we have a new study design for 2023 to 2027. And the background for this is that it's the result of a very thorough consultation and review process. It was published in February of this year and like all VCE studies, it is benchmarked against international standards. Consultation was wide, it was across government, Catholic and independent sectors as well as stakeholders from the tertiary sector. The main high-level revisions were in reference to Specialist Maths, but also the introduction of the unit three and four Foundation Maths as a brand-new study for 2023 onwards. And the role of the VCAA beyond the curriculum restructure is to provide support for schools in their understanding of their responsibilities around the revised study design requirements and awareness of where their practise may need to evolve.

Okay, so the revised study design refers in the preambles for each of unit one, unit two and unit three and four about the notion of assumed knowledge. And this provides students with a good indication of the skills and knowledge from the subject that will facilitate their learning across the sequences. To clarify the notion of pre-requisite subjects, particularly for 2023, Foundation Maths Unit Three does not require Units One and Two Foundation Maths. Students may choose to transition in into Foundation Maths three and four from previous VET or VCAL numeracy subjects, or from units one and two General Mathematics. However, schools must be aware that some extra work may be needed to bring students up to the appropriate background level. I'll also clarify, since confusion sometimes arises in the Mathematics studies around what is considered examinable and what is considered essential for a conceptual basis for learning in the development of key knowledge and key skills within the parameters defined through the areas of study for each subject. Not all elements essential for learning in units one and two or three and four would appear on an examination paper. The exams are constructed around the key knowledge and key skills under units three and four for the particular study in Maths, but in Mathematics studies, the key knowledge and key skills find contextualization through the lens of the areas of study.

So, Foundation Maths one and two has been a previous subject within the study design. It is retained in close to the same format with some changes or some revisions. The areas of study as they appear on the screen, algebra, number and structure. Data analysis, probability and statistics, discrete mathematics and space and measurement. And Foundation Maths units one and two focus on providing students with mathematical knowledge, skills, understanding and dispositions to solve problems in real contexts for a range of workplace, personal, further learning and community settings relevant to contemporary society. Some of this you'll find in the study design, I've just picked and chosen a couple that I think bear particular witness to the intention of the subject. Another point in the study design that I think is quite vital. Students should have facility with relevant mental and by hand approaches to estimation and computation. It's not a subject that's designed to develop a reliance, a sole reliance on calculators, but instead designed to assist students to develop a discretion, a discerning approach to the utilisation of technology where it's appropriate.

So, some of the changes or the revisions in Foundation Maths. For unit one, area of study three, we can see that up on the screen there and area of study two. The subject seeks to promote mathematical knowledge, skills and understanding to solve problems in real contexts for the range of workplace, personal, further learning, community and global settings relevant to contemporary society. I really like that particular quote, that's why I've repeated it. The new content does focus on trying to improve the student's skills and understanding of Mathematics that will be relevant in their life and that's really the take-home message around this subject. This subject is really designed to furnish students with those skills and dispositions that will really assist them when they finish their schooling. And perhaps don't want to continue a pursuit of the study of Mathematics, and yet will find it to be essential in their everyday life. In terms of the key knowledge and key skills within the study design. I'm not going to read them all out.

You can find a copy of the study design and be able to read those out at your own leisure. I want to clarify what is meant by these, and I'm possibly not saying anything you don't already know, but key knowledge really highlights what students should be able to know about. Know and recognise, should they read or see Mathematics presented in an exam paper or a test or a SAC or something like that, sure. But when they emerge from their schooling days, can they recognise Mathematics when it manifests in their life? There's a focus, a heavy focus I think on personal finance and understanding and an ability to make discerning judgments within personal finances, but also in terms of businesses and understanding the finance of business and what might be beneficial and what might be not beneficial. Key skills should be things that students should be able to do.

So, as you read through the study design, the key skills will be things that students will be able to do. And outcome one highlights these particular actions. Outcome two highlights the notion of applying thinking in practical contexts, and some of them include common uses and applications of Mathematics in aspects of everyday life. I think common methods of presenting and communicating Mathematics in everyday life. For example, charts, graphs, maps, plans, tables, symbolic expressions, and diagrams. Again, I'm reading these from the study design. I'm just highlighting some of these that I think bear particular importance amongst the scheme of things. Outcome three. Students should be able to enact facility with appropriate technology. And that's really saying that when students need to utilise technology, they should be able to apply the appropriate thought processes to draw judgements about what the product of the technology's output is going to be and whether that output makes sense or whether it needs to be needs to be modulated rather than just simply accepting what the output happens to be.

And in terms of relevant key knowledge and key skills from outcome one, and this will apply an outcome two as well, the role of computational thinking. I'll talk about this a little bit later as well. Kevin might talk about it as well too. The role of computational thinking, abstraction, decomposition, pattern and algorithms in problem solving and its application to mathematical investigation. From the key skills, the ability to interpret, evaluate, and discuss the outputs of technology, including reflecting on and evaluating the technology used and the outcome obtained relative to personal, contextual, and real-world implications.

From Foundation Maths Unit Two, if we can have the next slide, please, thank you. The focus of unit two is to extend the breadth and depth of the application of Mathematics to solving practical problems and context present in students' other studies, those other subjects that they might be taking in VCE, work and personal or other familiar situations. And again, there are all the relevant dot points from the study design as listed under the areas of study and as listed in the key knowledge and the key skills. One of the particular key skills of note is from area of study four, and that is to create and modify simple diagrams, plans, maps, or designs using drawing equipment and digital drawing packages. We'll also highlight that these two elements that are displayed on the screen right now have been shifted from unit two into units three and four. So, they'll crop up just a little bit later.

Okay, onto the new areas of study. And again, this is a completely new study. So rather than list off every single one of the dot points that doesn't make for a very useful expenditure of time, again, that I highly recommend going to the study design and spending time looking at the areas of study, looking at the key knowledge and the key skills on the understanding that the examination and students will sit in examination. I'll get to that in the frequently asked questions later, as part of their assessment, the examination is constructed with great consideration of the key knowledge and the key skills, utilising the areas of study as a lens for contextualization. So, we've got four areas of study in unit three and four. They're displayed on the screen there.

And if we break those down just a little bit, so next slide please, Kevin, these are the dot points that appear under the areas of study and some of the components from the key knowledge and key skills that I think bear or warrant a little bit of recognition on the basis that we don't want students to be missing out. These are still recognised as important even though they may not immediately spring to mind as being something you might encounter in Foundation Maths. That being from the key knowledge rational numbers and measurement related irrational numbers. Manipulation and transposition of formulas to find unknown values and simultaneous equations and their graphical and algebraic solutions. Estimations and approximations are also contained within the algebra component of the study.

Now, the key skills for algebra, sorry, we're still on algebra there, Kevin, for just a moment longer. Just to clarify the simultaneous equations, the notion finds contextualization in finding the break-even point using simultaneous equations. And there are various contexts where you might seek to find a break-even point. One that springs to mind might be the installation of an LPG fuel on a car or something along those lines where over time the cost is recouped and finding when that break-even point is, and then being able to calculate savings would be a great context for investigation. Use of estimation and approach is to check the outcomes. Again, we are seeking to develop the notion of as sanity check that students can apply to outputs generated by technology.

The second area of study, please, Kevin, is in terms of data analysis. Like with the previous one, I won't read out all of the dot points. I will highlight, however, that continuous data is appropriate for this particular study. And then finding or exploring the purposes and effectiveness of different forms of data representation, and types of graphs and data scales, including contemporary digital representations. That's also standing out as something that requires some level of emphasis on the basis that it might be slightly different to what you might expect within the study. Features of sets of data, measures of central tendency, mean, median and mode and spreads such as standard deviation, quantile intervals, range and percentiles, shapes of distributions and the outliers. Again, we want to go into that level of detail for this particular study.

And for the next area of study, please, number three. Finance and, sorry, financial and consumer mathematics. And this area of study is really about developing a great cognition and an intuition within the students about what may or may not constitute clever investments and clever ways of managing money, whether that happens to be for personal finances or for business finances. One of the dot points that I've been previously asked about, some of you may have already emailed me. I've had a lot of emails from teachers regarding Foundation Maths and about clarifications regarding Foundation Maths. And one of those was regarding the notion of a comparison of mortgages versus renting. It's a real-life context where we want students to have some level of intuition and some level of balanced approach to managing their finances in a way that means that they will understand what will be most beneficial for them long-term in terms of renting versus mortgages.

And next area of study please, Kevin. We also want students to be able to have some notion of space and measurement as it suggested some ability to handle calculations and to build an intuition with regards to transformations. And also, the last off point there errors in measurement being able to explore these, find particular usefulness in a workplace environment, particularly in a practical context. And I might hand over to Kevin at this stage to discuss the notion of the mathematical investigations.

**Kevin McMenamin** - Thanks, Michael. The investigations are going to become major parts of all of the VCE mathematical courses that are up. And the Foundation probably lends itself quite nicely to a set of investigations, knowing that the basis behind most of the material that will be introduced to them will be from a practical or contextual level, trying to then get them to be involved in particular themes or areas of work based on the areas of study that we were looking at previously, then gives scope to these investigations. So, it starts to put the Mathematics a little bit into practise as it goes along. So rather than just the straightforward knowledge and skills, maybe a couple of examples here and there, the whole idea behind the investigations is to immerse them really into that learning that's taking place. And because they're only going to be using a calculator that's scientific in its capacity, the other areas of technology that are available to them are quite widespread.

So, anything from spreadsheeting or graphing, or database, anything at all where it can be useful in terms of incorporating some level of skill would then be quite useful. And of course, would lend itself quite nicely to outcome three. It would also lend itself quite nicely to the computational thinking via technology. So, all of these are fantastic opportunities to get these investigations within the course itself, and to try and help the students understand where the mathematics does actually become important in a career, a pathway, a job of some description to then make real means of what they've been presented. The investigations themselves should be incorporated into your general teaching and learning. They can be certainly part of the classroom and would be expected to be generally part of the classroom, unless there's some research that's taking place that may require them to visit or go out into the community or sit at home and get some information from the internet.

Any of those quite readily come into these investigations and they can then give greater depth and clarity to what's actually been investigated as it unfolds. Each of the investigations, regardless of the mathematical course that you'd be doing follow these three components. Specifically, the formulation part of it is trying to come up with some information that may in fact be background or may in fact be useful in setting up what the investigation is going to look at specifically, there may be a few different options that are available to you. So, trying to do some sort of research, whether that'd be from the teacher that's involved or the students in gathering some of that information, whether it's then shared across the entire group. The idea of trying to get some of that information early, then allows the exploration to take place. So, the crux of the question now becomes the major component of the investigation, what are you looking for? What are you trying to develop in terms of the exploration?

Michael mentioned before the idea of LPG in cars, it could be the notion of electric cars, the idea of trying to investigate their uses, their development, how other countries are actually implementing them in, whether there's any targets over the next few years, costs, how that might get involved in terms of trying to bring these into the idea of community, state, country, when the idea of phasing out current technology regarding cars would occur. And then the idea of the communication is, of course, condensing all those of that information down to summarise it, present it, in a particular way that could be in a written format. It could be in a PowerPoint just like this one. It could be in a video, it could be in a project, it could be in a display. You've got a variety of options in terms of that communication and how it can actually be presented and depending on how your class is set up, there may be specific elements that you would be looking to maybe foster or to encourage based on that communication mechanism you would then go and use. They certainly give wide scope to the investigation that's going to take place and certainly give some structure as to how it should be developed as you go along. These are embedded in both one, two, and the three, four units.

I'm specifically referring to the one, twos at the moment, but certainly does become a common element in the three, four as well. These activities or investigations can be in a variety of ways, could be just the learning activities within the classroom, could be the development of a skill or an area of work based on the areas of study that were presented just previously. It could be used as an assessment task, doesn't have to be, could be a combination of both of those ideas or learning activity and coupling as an assessment task. Your thoughts on how this would be best implemented, of course, will depend clearly on the community that you have in front of you and what you're trying to develop within their skills of mathematical learning in the Foundation Maths units, but there is certainly a wide variety of options available to you in implementing this investigation.

Generally, they should take between one to two weeks. The one to two weeks, of course, could be over a weekend where you've seen them on a Thursday or a Friday and then you pick it back up on the Monday or the Tuesday. The idea of the activities or tasks is for them to do a reasonable amount of the investigation part, the exploration specifically, certainly the communication, depending on the investigation, or the information that you're trying to embed into the task. The formulation, as I said previously, may be done by an individual, it may be done on a group basis where the information is then brought back and many actually use it, or make note of the information that's there. But you do, again, have some options available to you in terms of how that would actually run.

The activities themselves should be based on the areas of study. In fact, it can be up to two areas of study and in the unit one, two level, you're looking at the two investigations that would be undertaken in that particular set of units. They should provide a clear identification of information that's either been undertaken or being undertaken. The information that's being presented, there might be particular investigations that you would like to look at based on a financial and a statistical background, the space and measurement that we were looking at before could be capital along with a financial element particularly if there's costs involved, you are going to go and construct or build something.

So, there is the idea of trying to bind together the areas of study and these investigations that you would actually develop along the way. The computational thinking, we've sort of touched on already. Being able to undertake and develop these sorts of tasks is generally going to bring in computational thinking anyway. When you go through the formulation stage and then the exploration, this computational thinking already happening, the investigation itself of trying to get information that's relative to the topic that you are looking for, how are you processing it, what's directing you in terms of new material that you're looking for. There is an element of computational thinking already involved in that particular level of the investigation.

So, when you get into the exploration, how's it going to unfold? What's it going to look like? How's it going to develop? Of course, you would be providing some element of scaffolding as you go through. The students you'll be working with in terms of their ability to think independently and construct one of these tasks would be probably expecting a little bit too much of them specifically. So certainly, scaffolding these sorts of tasks to give them some scope of exploration, certainly would be expected at the one, two level. They also provide a great jumpstart into the investigations that they'll undertake in units three and four. As I said, the structure is exactly the same. It's the formulation, the exploration, the communication.

So, they're very familiar with that style of setup of task. And then, again, it's just the work that would be undertaken at the three, four level that would make that difference in terms of the investigation they would then immerse themselves within. This is some idea of an investigation that you might actually consider. The area that this was gained from, this support material that will be coming out and published by the VCAA for teachers who are looking to implement this next year, this was taken from that support material.

So, you can see under the, there's three areas, what the formulation looks like, the exploration, et cetera. This was about the house rentals, how they might actually go about trying to find information regarding the rentals, what sorts of times that they would be looking to make their payments? What sorts of values are involved? A lot of good investigative work can certainly be undertaken for the formulation part. And then into the exploration, it could very well be them looking at producing this sort of information, whether it being a spreadsheet or the calculator itself, how they can actually get a set of figures that would then be useful in terms of setting up these rental comparisons and then, of course, communicating that in the end. As it's currently given, not enough information in there for a student to pick this up at the Foundation level and run with, but certainly gives a framework of what could then be developed as the time unfolds for these particular tasks. So that's just one investigation that you might consider an option as you go through. Michael, I think it's back to you for this slide.

**Michael MacNeill** - Okay, thank you, Kevin, for that. So, another part of the structural shaping of the unit three and four Foundation Maths is the assessment for the subject. And again, this is something that I have received a number of emails about just, and most of them in terms of clarification. It's all found directly in the study design. So, I'll try and unpack that just a little bit and provide some clear dot points around that or clear points of information around that.

So, in terms of the SAC work, there are three mathematical investigations across units three and four all contributing 20% towards the study score. In unit three, there are two mathematical investigations that address content from two or more areas of study. And both of these investigations are set to be four to six hours duration across the space of one to two weeks. In unit four, there's one mathematical investigation that addresses content from two or more areas of study. And again, goes for four to six hours duration across one to two weeks.

There will also be an examination. And the examination will have a duration of two hours. And the bit that's not in the study design, but won't be too far off being released is, that there will be a multiple-choice questions section and I think we call them extended answer components and more of that will become obvious once the sample paper is released. I'll talk more about the sample paper shortly. I think I was going to talk about it now, but I think I'll talk about it shortly when we get to the frequently asked questions section. Students will have access to a scientific calculator that will be assumed. And of course, one bound reference and the usual items around end of year date to be published by the VCAA. Examination rules apply as per all the examinations and the details for that are published annually in the VCE and VCAL administration handbook and there will be a panel of assessors that are appointed on an annual basis regarding the marking of those papers.

Next slide, please, Kevin, thank you. And in terms of the mathematical investigations and the outcomes that these are to be examining, we note that the investigations need to follow the format of formulation, exploration, communication. They should be assessed via rubric, and the outcomes, and this is more for clarification than anything, the outcomes do not correspond to the components of the task. So, section one, the formulation, that doesn't correspond to outcome one, and then exploration doesn't necessarily correspond to outcome two and then communication not to outcome three, but instead the three outcomes should be integrated throughout the task and measured to a differing degree across each of the components of the task. The outcomes should emphasise the practical scenarios.

So, if the investigation is being done as they're intended, there'll be a practical scenario that's being investigated. They'll be, or student performance on these will be very well facilitated by the unit one and two course. And it will be in line with the notions of computational thinking. Students transitioning from another subject. If they transition from General Maths One and Two, they will ideally have had a similar preparation through the investigations for that subject. And students transitioning from one of the more practical courses will find the consideration of the practical nature of the investigations to be most beneficial. Back to you, Kevin.

**Kevin McMenamin** - Thanks, Michael. So that takes us into then investigations for the units three and four across the two sets of years, the one, two into the three, four, there needs to be some development in terms of complexity of task and understanding of material. And again, this was an example that was taken from the support material that will be published later on in the year. This one starts with the context, the idea of what is going to be pretty critical to the investigation that's then going to be undertaken. You'll notice there's a bit of pre-information given not particularly directing them too far into what needs to be done, but just setting up the scene or the story that's going to unfold from this point forward. And then the formulation part of it, poses a few questions. Now, this was a slightly different to the one, two sample that we were looking at just previously.

And of course, you will have good ideas as well in terms of how these investigations, one should be constructed and then two should be developed through the three sections that we were just referring to the formulation, exploration and communication. How the formulation is then undertaken would depend on how you want your students to get this information. Again, whether you want to send them out to work on it individually, whether you want them to gather it together as a group and then everybody is then has access to all of that information that's being supplied, how the question then unfolds is then really part of these investigations as we go forward. As Michael just indicated, they're meant to be four to six hours in duration.

So that does give them a fair amount of time to immerse themselves in the learning of the content. And to then put it into each of these application tasks. The communication part certainly would need some nurturing and development within the learning and teaching that goes on. That's not something students will have done very much previously. Therefore, the variety of opportunities you can give them to make that presentation will certainly benefit them. They will have had other subject areas where certainly some form of presentation has been required. And therefore, that may then certainly develop their thinking here and how they might want to present the information that they found in these investigations.

So, the major part of most of the investigations is trying to come up with a theme and as would commonly be said in these instances, we try and think of these the day before we're about to teach it, really these can't happen in that particular manner. You do need to be thinking about these probably from now would be a wonderful time. And just as you move around from day-to-day, try to think of different scenarios that might actually be quite useful in an investigation-type scenario, great idea to then go and write those down. And then as time goes on, just to consider how it might be developed or how it could unfold to then be quite a useful task for students to then undertake and involve themselves within, which then brings us to the computational thinking and Michael, I'll throw it back to you.

**Michael MacNeill** - No worries, thanks there, Kevin. The notion of computational thinking and algorithmic thinking is one that's been in the F to 10 Curriculum for some years now and has found its way into the VCE study design in different formats and is now explicitly in the VCE study design. And it's an aspect that is continuing to develop, and I think teachers are continuing to embed these notions of computational and algorithmic thinking as they progress. But I'm not at all convinced that it's something that teachers haven't always been doing. Now, and I'll get to the algorithm thinking in a moment, but computational thinking being the decomposition pattern recognition abstraction, and the use of algorithms is a particular process.

And in these slides for this webinar, which I think will be made available once I've gone through quality assurance, there is a link in here to take you to some of the VCAA pages, which provide resources and further explanations. I might click ahead in the slides, Kevin, if you could please, only because, back one, please, only because we're, oh, no, in the middle, there we go. There we go. Only because those last two dot points on that slide, they start to sort of beg the question, they're quite pertinent to what we're doing sort of right here right now.

Now the notion of algorithmic thinking, and what does algorithmic thinking look like? There are plenty of academic definitions of it. One that that is, I think of a very clear definition is the notion of adopting a procedural mindset or approach to problem solving, whether that's small scale or large scale. And there will obviously be debates around definitions, but I do like the notion of something that's procedural. And when you think about an algorithm and even the teaching of Mathematics at any level, they follow particular procedures. Those procedures then find contextualization, which then lend themselves to problem solving, which is a slightly different aspect. Computational thinking involves that decomposition pattern recognition, abstraction, and algorithms and being able to apply this thinking process has been identified as essential for citizens in a modern society.

Kevin and I were talking before the webinar about some contexts that may make sense for Foundation Maths. And one suggestion, which was Kevin's, was if we've got a set of lawn to mow which might not be in the regular rectangle, or it might be a regular rectangle with some obstacles around it, what would be the quickest pathway in order to mow all of the lawn. And one that I thought about was if we've got a regular floor space, regular-shaped floor space, again, like a rectangle, but it could be a triangle, it could be a circle or something like that that you might want to modify or modulate, what would be the minimum number of floating floorboards that you could place in a tessellated pattern of some kind, although these are deliberately obtuse, but, or at least lend themself to open-ended investigation, which might be again, useful for investigations.

But they also demonstrate how you would need to take a computational mindset, computational thinking mindset, as you're decomposing, you're figuring out what's going on. You're identifying patterns and then you're thinking in an abstract fashion about what's going on before you apply an algorithm for minimising the amount of space that you need to mow, or the amount of floorboards that you need to utilise. From the finance section, it might be something like an Afterpay style payment deferment plan and how that might impact on finances.

And I'm using those as a means of sort of painting a Foundation Maths picture of what algorithmic thinking might look like in the subject but also what computational thinking might look like within the subject. Again, this is available in the notes on the slide reel that'll be made available after the webinar. Which might bring us up to the frequently asked questions. Now, these are the questions that were identified prior to the webinar. Note that some questions have appeared already in the question-and-answer section. I'll attempt to, or I'll endeavour to get to those as well as these ones here.

So back one slide, Kevin, if we could. Just one, there we go, okay. Support material. Yeah, support material is absolutely going to be available. It'll be available across the second half of 2022. A sample examination paper is also in the process of being developed. We're taking our time to ensure that we get this right the first time that the study has run, and we want to make sure that this is right. I certainly understand that people want to see what the sample paper will look like. They want to know what the paper will look like and need to see these things in order to appropriately advise students in order to ensure that the advice that will be eventually given to students is the correct advice. We want to make sure that the resources that we develop are not only appropriate, they're as correct and complete as they can be for you to utilise.

And so, we're expecting that the timeline for that to be across the back end of this year, the second half of this year, I should say. Sample SACs, will they be published by the VCAA? And the answer is no, not quite, in the support material, I think I saw this in one of the answer and questions as well so maybe I'm addressing this one at the moment, too. There are plenty of starting points. We spent a lot of time developing the support material, a lot of resources developing the support material for this particular subject to ensure that, particularly for the investigations, unit one, two, three, and four there are the appropriate starting points. And I think once the support material is made available, that might alleviate some of the concerns people have over the investigations within the subject. There there's plenty in there to facilitate that.

One of the questions that I've been asked is about pseudocode. Some of you might have heard of pseudocode being introduced in Maths Methods and Specialist Maths, it is not going to be introduced in Foundation Mathematics, computational thinking is the notions behind that, but pseudocode itself is not going to be introduced into Foundation Maths. The SAC structure of Foundation Maths, two investigations in unit three, one investigation in unit four. We've been through the details just previously.

And then next slide please, Kevin. Some of these are the other questions that I've been asked, will Foundation Maths attract a study score? Yes, it will. It's a VCE study and it can attract a study score unless of course a student is going unscored for the study, and it will attract a study score, it will generate that. Will it constitute a prerequisite from the university courses? There has been no concrete word as yet. There is however, or there has however been published in the 2024 VTAC Prerequisites Guide, an indication that Foundation Maths may or may not be considered under the "any Maths" banner that, and that VTAC will update the information as the universities finalise the decisions around the subject. So, at this stage we can't provide an answer to that particular question just yet.

Can Foundation Maths contribute towards an ATAR? Again, the VTAC, the body who make the decisions around ATAR generation, and so we will continue to wait for them to publish the appropriate advice as the subject develops. I'll go to the Q & A, not quite yet. I'm trying to get the Q & A to, here we go, to display. So, sorry, I'm going to have to peer at the screen just a little more closely.

Can a student do Foundation Three and Four if they've completed Methods/General Three and Four? There are no, I'll defer to the VCE and VCAL administration handbook on that one. And also in the study design, where it's indicated that no prerequisites are necessary for units one and two, however, units three and four must be completed as a sequence. There's a question, oops, that's flipped. There's a question regarding the notion of calculating standard deviations. And I guess that question really comes from the notion that we don't want to be asking students or more of the students than they have the capacity to engage with. And that's certainly the case here, we're not going to be seeking, or where we ask a question regarding something like standard deviation, it'll be more about the notion of standard deviation as a measure of spread, rather than having them try to numerically calculate something which would prove incredibly difficult. We want students to understand they need to be walking away from the subject with the ability to understand what data is, how it may be represented and what the particular measures of that data might indicate for them to appropriately understand that data.

There's some longer questions here. I'll take a moment to try to read that one. There's a question here that asks about VCAA don't want to provide sample SACs due to authenticity issues, and that is correct. However, there will be plenty of starting points in the support material, particularly cognizant that this is a new subject, the support material that that has been developed for Foundation Maths has been particularly extensive. And I think quite professional in its production and the final product is quite comprehensive. And I don't think teachers, once you get to see the support material, once it's been appropriately quality-assured, I'm quite confident that teachers will be quite well supported by what's provided.

There's a question about, and publishing rubrics, yes, that's all part of the support material. And the timeframe for extra support material is kind of, it is what it is, folks, I'd really like to be able to push a button today and say that it's available this afternoon, that can't be the case. It's got to be appropriately quality-assured, and the VCAA, a like many organisations around Victoria, Melbourne and Australia have been affected by the conditions of the pandemic. And by just the conditions of wintertime, the various availabilities of people to ensure that what we produce is at the level that it must be, has been impacted. And that's really what has impacted the timeframes for this.

Now, I'm cognizant of time now, we've reached 4:50 which is beyond our time scope. Now, unfortunately, I haven't been able to get to all the questions in the Q & A, however, I would like to reiterate that my contact details, if you could jump to the next slide, please, Kevin, my contact details are available on the VCAA website. If you go to any of the study design pages, for example, then you'll have access to this, telephone numbers and email addresses. I'm quite happy to engage in conversations with people. I'm just very aware of the constraints of the time that we've got.

So, this is where we're finished tonight. I thank Kevin McMenamin for being my co-presenter. I thank our hosts tonight from the VCE unit. And I thank you, the teachers who have given up your time to find out information that will, I hope, support you in your endeavours in supporting your students along this journey. I'm quite excited about this new subject. I think it's going to be a really good one. So, I thank you for your time and I thank you for your investment in the subject.

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